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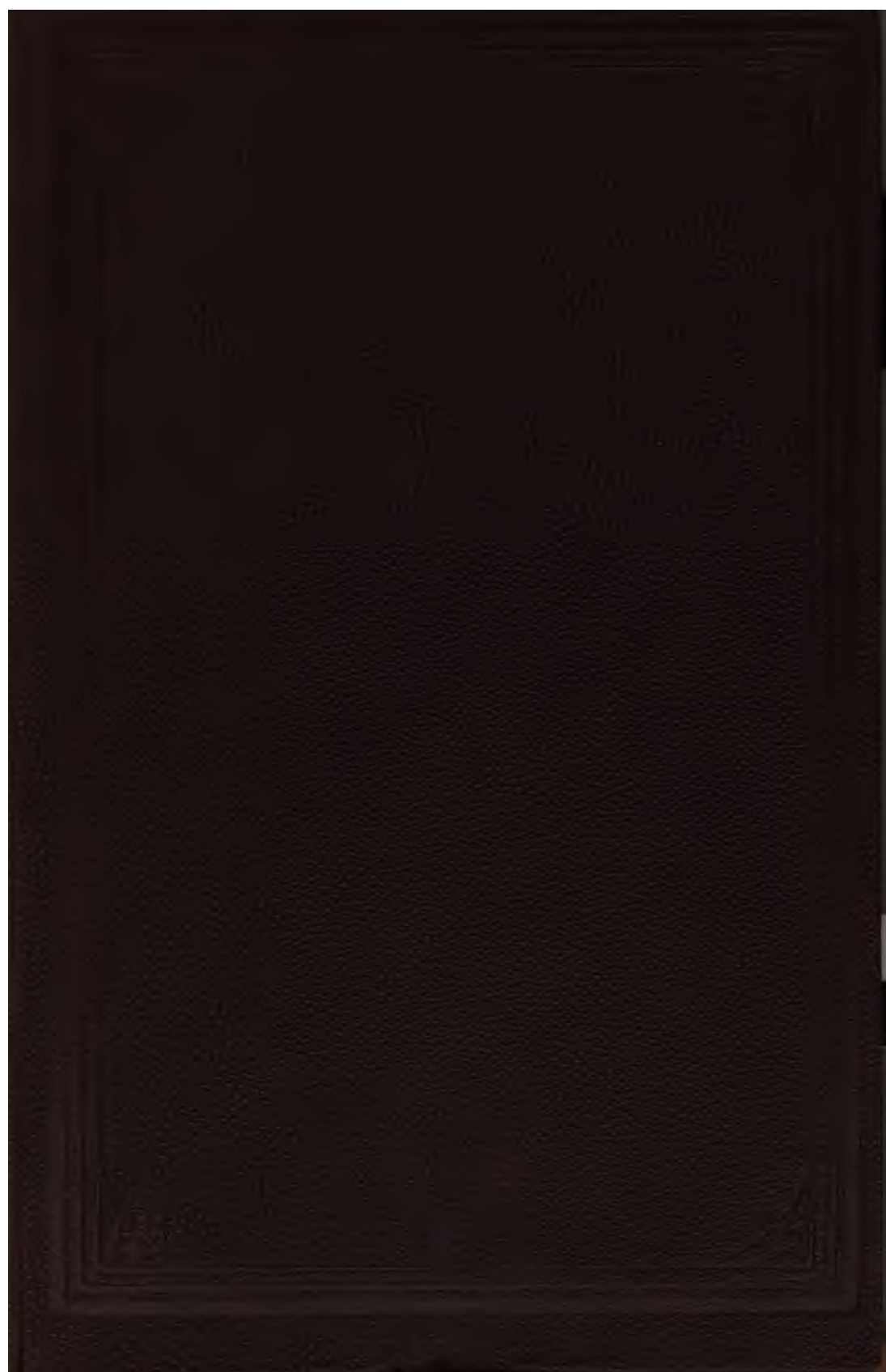
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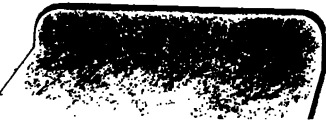
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PART I.





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CATALOGUE  
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INDIAN MUSEUM.

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PART I.



CATALOGUE  
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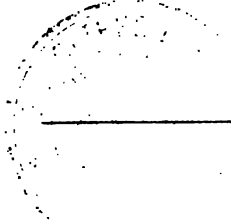
CALCUTTA:

BY  
JOHN ANDERSON, M.D., F.R.S.,

SUPERINTENDENT OF THE INDIAN MUSEUM, AND PROFESSOR OF COMPARATIVE ANATOMY,  
MEDICAL COLLEGE.

PART I.

Primates, Prosimiæ, Chiroptera, and Insectivora.



CALCUTTA:  
PRINTED BY ORDER OF THE TRUSTEES.  
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## PREFACE.

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A CATALOGUE of the Mammalia in the Museum of the Asiatic Society of Bengal, drawn up by the late Mr. Edward Blyth, was published by the Society in 1863.

In 1865, the Museum of the Asiatic Society practically became the property of the Government of India, although the legal transfer was not completed until 1876.

The various departments of the Museum have very largely increased since 1863, many of them now being four-fold more extensive than they were seventeen years ago. It was, therefore, recently resolved to issue a series of catalogues of the various departments of the Museum, with the object of making their contents known, and thus extending the usefulness of the Institution.

Two instalments have already been published, *viz.*, a Fasciculus of the Catalogue of the Mollusca, and the first part of a Hand-List of the same group. The present volume therefore, is the third of the series.

It comprises, however, only the first four orders of the Mammalia, *viz.*, *Primates*, *Prosimia*, *Chiroptera*, and *Insectivora*; but catalogues of the remaining orders will be published as soon as possible.

Some idea of the increase that has taken place in the

collection of Mammalia since 1863 may be gained from the following table; but in other groups the increase is even more marked:—

	PRIMATES.		PROSIMIÆ.		CHIROPTERA.		INSECTIVORA.	
	1863.	1881.	1863.	1881.	1863.	1881.	1863.	1881.
Genera . .	11	17	3	7	24	27	13	17
Species . .	40	73	7	14	67	113	36	52
Specimens . .	162	572	22	69	215	1,116	123	426

The Chiroptera in this catalogue, with a few exceptions, were identified by Mr. G. E. Dobson, who published a list of them in his Monograph of the Asiatic Chiroptera, issued by the Trustees of this Museum in 1876; and his arrangement of the group has been followed.

A list of the donors to the sections dealt with in this part of the Catalogue will be found after this Preface. It includes, as far as possible, the names of all contributors before and since 1863.

## NAMES OF CONTRIBUTORS MENTIONED IN THIS CATALOGUE.

---

Abbott : Major J. Abbott.  
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Adelaide Museum.  
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Yarkand (Second) Mission.  
Yunnan Expeditions.  
Zoological Gardens, Calcutta.

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# MAMMALIA.

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## I.—ORDER PRIMATES.

### I.—SUB-ORDER CATARRHINI.

#### I.—FAMILY HOMINIDÆ.

I.—GENUS HOMO, Linn., 1766.

#### II.—FAMILY SIMIIDÆ.

##### I.—SUB-FAMILY SIMIINÆ.

GENUS ANTHROPOPITHECUS, Blainville, 1839.

##### 1. *Anthropopithecus troglodytes*.

- Simia troglodytes*, *Gmelin, Linn. Syst. Nat.*, vol. i, 1788, p. 26.  
*Troglodytes niger*, *Geoff., Ann. du Mus.*, t. xix, 1812, p. 87.  
*Simia pan*, *Donovan, Naturalist's Repos.*, no. 19, 1823-27.  
*Troglodytes leucoprymnus*, *Lesson, Illust. Zool.*, pl. 212, 1831.  
*Anthropopithecus troglodytes*, *Blainville, Leçons Orales*, 1839.  
*Satyrus lagaros*, *Mayer, Wiegmann Arch.*, 1856, p. 282.  
*Troglodytes calvus*, *Du Chaillu, Proc. Bost. Soc. Nat. Hist.*, vol. vii, 1861, p. 296.  
*Troglodytes kooloo-kamba*, *Du Chaillu, Proc. Bost. Soc. Nat. Hist.*, vol. vii, 1861, p. 358.  
*Troglodytes tschego*, *Duvernoy, Arch. du Mus.*, t. viii, 1861, p. 15.  
*Troglodytes vellerosus*, *Gray, Proc. Zool. Soc. Lond.*, 1862, p. 181.  
*Mimetes troglodytes*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 6.

The Chimpanzee.

*Hab.* West Africa.

1a. A stuffed specimen of a young male, probably about 18 months old, No. 2A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1844.



b. A natural skeleton of a young individual. Presented by Edward Blyth, Esq., 1864.

c. An adolescent male in alcohol. By exchange with British Museum, 14th June 1877.

## 2. *Anthropopithecus gorilla*.

*Troglodytes gorilla*, *Savage, Bost. Journ. Nat. Hist.*, vol. v, 1847, p. 417, pls. xl-xliii.

*Troglodytes savagei*, *Owen, Proc. Zool. Soc.*, 1848, p. 29.

*Gorilla gina*, *Is. Geoff. St. Hil., Arch. du Mus.*, t. viii, 1855-56, pp. 1 *et seq.*

### The Gorilla.

*Hab.* Gaboon, West Africa.

2a. A cast of the skull of an adult male. Presented by Edward Blyth, Esq., May 1864.

b. A cast of the skull of an adult female. Presented by Edward Blyth, Esq., May 1864.

c. A cast of the skull of a young female. Presented by Edward Blyth, Esq., May 1864.

## GENUS *SIMIA*, Cuv. & Geoff., 1795.

### 3. *Simia satyrus*.

Borneosche orang-outang or pongo, *Wurmb. Verhandl., Batav. Genootschap*, d. ii, 1786, p. 245.

Singe de Wurmb, *Audebert, Singes et Makis.*, Fam. I, 1797, p. 18, Tab. Anat., fig. 3.

*Simia satyrus*, *Linn., Syst. Nat.* 1766, p. 34.

*Papio wurmbii*, *Latr., Singes* Fam. I, 1801, p. 196.

*Pithecus satyrus*, *Geoff., Ann. du Mus.*, t. xix, 1812, p. 88, *partim*.

*Simia wurmbii*, *Fischer, Syn. Mamm.*, 1829, p. 32, *partim*.

*Simia morio*, *Owen, Trans. Zool. Soc. Lond.*, vol. ii, 1841, p. 168, pls. 33 & 34, ♀ skull; *Blyth, Journ. As. Soc. Beng.*, vol. xxii, 1853, p. 371, pls. vii & viii, ♀ skull.

*Pithecus brookei*, *Blyth, Journ. As. Soc.*, vol. xxii, 1853, p. 375.

*Pithecus owenii*, *Blyth, op. cit.*, p. 375.

*Pithecus curtus*, *Blyth, op. cit.*, vol. xxiv, 1855, p. 527.

### The Orang-outang of Borneo.

*Hab.* Borneo.

3a. A stuffed adult male,<sup>1</sup> its skull, and the bones of its trunk. The bare cheeks are enormously outwardly enlarged,

<sup>1</sup> This specimen was received at the Museum immediately after death (during my absence from India), but it is to be regretted that no observations or

the skin of the face and of the great bare area on the guttural sacks being livid black. The skin of the face is sparsely covered with short red hairs, and the forehead also is almost naked. The sides of the upper lip and the chin are clad with long bright maroon-red hairs. The hair on the middle of the head, immediately behind the forehead, is rather short, while that over the temporal and parietal regions is long and directed forwards. On the rest of the head the hair is dark maroon-black, this colour also extending round the sides of the neck and on to the throat. Between the shoulders the colour is more rufous, whilst down the back it is almost as dark as the head, the sides being also maroon-red, as well as the shoulders, the arms being almost red, and thus paler than every other part of the body. The lower portions of the thorax and the abdomen are dark maroon-red. The legs are almost as pale as the arms. The hair on the body generally and on the limbs is very long, measuring as much as 13 to 14 inches.

The skull has a well-developed sagittal and lambdoidal ridge, and the orbital ridges are also well marked, and the malo-maxillary area is broad. The facial portion slopes well forwards, also the interorbital area, in which the nasals are tolerably well developed. The orbits are large and more or less rounded. The canines are large, and their ridges very prominent. The dentition is complete, and the molars are large, and also the front upper incisors, which, however, are much ground down. The palate is oblong and deep. The lower jaw is very powerful and heavy, and the canines are large. The right tooth, however, is broken across, but its root is so long that it is visible on the lower aspect of the symphysis.

This Orang, as stated by its donor, Mr. Rutledge, arrived at Singapore in a native craft from Borneo, along with some other Orangs. Presented by Wm. Rutledge, Esq., 8th November 1880.

*b.* A flat skin and skull of a young male. This specimen in life had the cheek swellings partially developed. The hair on the head is much the same as in the previous male as regards colour and distribution, but is somewhat shorter. The skin of the face is sparsely covered with short red hairs,

measurements were recorded, beyond that the huge face measured nearly 14 inches across. The skeleton, with the bones of trunk and of the hind limbs, still ligamentary, measures 4 feet  $\frac{1}{4}$  inch from the vertex to the under surface of the *os calcis* in a straight line, although the thoracic portion of the vertebral column is much curved.



but the red moustache and beard are only beginning to show. The general distribution of colour is much the same as in the previous animal, with the exception of the arms, which are dark maroon-brown; and the hair about the *nates* and on the sides is more rufous than in the preceding animal. The following are some of the measurements of this individual:—

	in.
Heel to vertex . . . . .	36·25
Stretch of arms to middle finger . . . . .	64·50
Head of femur to heel . . . . .	14·75

The skull measures 6"·95 from the occiput to the anterior border of the premaxillary, with a width across the zygoma of 4"·75, and a maximum parietal width of 4"·12. The milk canines and incisors are still present, but the front upper incisors can be seen in their sockets to be very broad and large teeth, the two permanent molars that are through being also very large. There is as yet no trace whatever of a sagittal ridge, and the temporal ridges from the orbits are still 3 inches apart on the vertex. The orbits are moderately large and rounded, and the interorbital area is nearly vertical, the nasals being small. The muzzle is broad and directed forwards, almost at right angles to the interorbital surface. The symphysis of the lower jaw is deep. The front lower incisors are through and serrated, and the penultimate molar is appearing through the alveolus. Purchased, 28th July 1879.

c. A young male in alcohol and its skull. In life it presented distinct indications of cheek swellings, although it had only its milk teeth. The general colour was dark maroon. It was a heavily-built animal, with shorter fingers than the generality of Orangs of its age. The following were its measurements:—

	ft.	in.
Height, erect,—heel to vertex . . . . .	2	1·50
Outstretched arms . . . . .	3	4·20
"    legs . . . . .	2	7·75
Head of humerus to tip of middle finger . . . . .	1	6·00
Length of middle finger . . . . .	0	2·40
"    of hind extremity to tip of middle toe . . . . .	1	2·75
"    of middle toe . . . . .	0	1·97
"    of hand . . . . .	0	5·50
"    of foot . . . . .	0	6·50
Vent to vertex . . . . .	1	5·50

Presented by the Zoological Gardens, Calcutta, 2nd June 1877. This specimen in the colour of its hair more resembled the form

which appears not to have cheek swellings, but in its squat, powerful build and short fingers it was evidently not that race.

d. The skin and skull of an adolescent male. This specimen is nearly uniformly coloured dark maroon, darkest on the head and ferruginous on the back of the thighs, moustache and beard. The hair is long, with the exception of that on the middle of the head, but the direction of the hair on this region and external to it is the same as in the adult animal first described. The moustache and beard are only partially developed. The face is sparsely covered with short red hairs. The cheeks did not present any trace of swellings.

The milk canines are still present, and there is no trace externally of the permanent teeth. The front pair of the upper permanent incisors are fully through, and the outer incisor of the right side is also present, but its fellow of the opposite side is only appearing. The penultimate molar had been in full functional activity. The front incisors are very broad and the molars are very large. The palate is long, broad, and deep. The orbits are small and round, but flattened above, and the interorbital area slopes slightly forwards, and the maxillæ are much forwardly directed. From the upper margin of the nasals to the anterior border of the foramen magnum is 4".05, and from the latter point to the anterior margin of the premaxillæ measures 5".66. As yet there is no sagittal ridge, the ridges being only feeble raised lines, separated from each other by more than two inches. This character, however, in a male Orang skull is only an indication of youth, whereas it is a characteristic feature of the more delicately formed female skull. The skull presents a depression near the upper border of the left parietal, and another on the right orbit, but similar depressions of this nature are better illustrated in one of the succeeding adult skulls. Presented by the Zoological Gardens, Calcutta, 29th April 1880.

e. A stuffed nearly adult female with its skull and hyoid bone, and the uterus in alcohol. The hair is long and dark maroon, approaching to blackish on the body generally, but on the back of the thighs it is a pallid ferruginous. The hair on the head is long and directed forwards, longest in the temporal region, and the face is sparsely covered with short hairs. The moustache is only very feebly indicated, and also the beard. This animal lived for about one year and a half in the Zoological Gardens, Calcutta, and at its death it measured 3 feet 8.50 inches from its heel to the vertex, and the stretch of its arms was 6 feet 4 inches. The skull has very much the same form as in the preceding male. The skulls so closely resemble each



other that the specific identity of the two animals seems highly probable. This female skull has the same large upper front incisors, but its first and second molars are smaller than in the foregoing male, but the two palates have much the same form. The last molars of this female are through the alveolus, but not yet on a level with the other molars. The orbits are larger than in the foregoing male, and are slightly forwardly oval. The interorbital area has much the same slope as in the preceding male skull, and the facial portion about the same forward direction. From the upper margin of the nasals to the inferior border of the foramen magnum measures 3·70 inches, and from the latter point to the tip of the premaxilla is 5·30 inches. The temporal ridges are far apart.

In the lower jaw there is the peculiarity of the complete absence of the last molar on the left side.

The hyoid: on the basihyal end of the right thyrohyal there is a large hook-shaped process, which in the other basihyal assumes the form of a bullate hooked pointed epiphysis. It is in no way connected with the basihyal, and when the right thyrohyal is viewed from below this hook-shaped body appears only as a backwardly and upwardly projecting process, whereas on the left side it appears as an epiphysis; viewed from above, the basihyal end of the right thyrohyal is seen to have been composed of the hook-shaped process described, and an intermediary portion amalgamated on the under surface; on the left side the same structure is observed. It would thus appear that there are cerato and epiphysals so approximated in their position on the basihyal as to amalgamate with the thyrohyal; on the same stand with this is exhibited the partially ossified thyroid cartilage. Presented by the Zoological Gardens, Calcutta, 8th April 1879.

*f.* The skin, skull, and the bones of the trunk of an adolescent male. This animal in external appearance is comparable with *d*, as the hair in colour and distribution is the same, the skin of the face of *d* being only a little more hairy. This latter character, however, can be explained: the animal died in the month of December, the second cold season it had lived in Calcutta, and it is probable that the increased amount of hair on the face was due to climate.

Although there is such a close resemblance externally between the animals, the skulls are remarkably different. This skull has large upper incisors, but smaller than those of *d*, as are also its molars. The orbits are much larger and more open, and without any flattening above; the interorbital area is longer, and not so forwardly sloped, and the muzzle is not

so broad, these differences being probably due to the effects of confinement, as the previous specimen *d* was only a few months in captivity before it died, whereas this animal was nearly three years in confinement and at a period when its teeth would have doubtless attained a greater development had it been in a state of nature.<sup>1</sup> The brain case, although not so high as in it, is fuller and broader. The last molar is not visible, and the outer upper incisors and the canines, above and below, are only coming through. The parietal ridges are mere lines, far apart. From the upper margin of the nasal to the anterior border of the foramen magnum measures 3".55, and the length from the incisor border of the premaxillaries to the foramen magnum is 5".10.

Presented by the Zoological Gardens, Calcutta, 23rd December 1879.

*g.* The skin and skull of an adolescent female. Dark maroon, darkest on the head and arms, ferruginous on the back of the thighs. The hair is long, and directed forwards on the head, as in the previous examples, which it closely resembles.

The skull is like that of *e*, but the muzzle is not so forwardly projected. From the upper end of the nasal to the foramen magnum is 3".70, and from the latter to the front of the premaxillary measures 5".40. The temporal ridges are far apart. The incisors are large, but not quite so large as in that skull. The permanent upper incisors are appearing, and the last molar is visible through a small opening in the alveolus. The molars are not quite so large as in *e*.

The atlas is firmly anchylosed to the skull at the condyles on both sides, and on the left side the bone is amalgamated with the skull at the condyle and along nearly one-half of the

<sup>1</sup> This animal, after living in the Zoological Gardens, Calcutta, for about 18 months, was suddenly deprived, by death, of the female (*e*), who had been his constant but distant companion during that period. Her death affected him much, as it did also the young female who had been reared by her, and who was believed to be her child. The male appeared to pine and used to sit outside, on the top of the large house in which they were kept, looking in the direction in which the dead body of his companion had been carried away. During the day he could not be induced to go into his house for shelter from the blazing sun. The result was, that one very hot day, in the end of April, he came down from his look-out in a dazed condition, apparently blind and staggering. He never rallied, and at last he became paralysed and died 7 months afterwards.

The young female, when her supposed parent, but if not so, tender foster-mother, was carried away dead, exhibited all the signs of deep grief, emitting a wailing sound, but no tears, attempting to follow the body, and, when driven back, crying and rolling on the ground in a paroxysm of grief.



basi-occipital, the foramen for the front pair of nerves being almost wholly obliterated on that side, whereas two large foramina occur on the anterior and external aspect at the front, where the atlas has coalesced with the condyle at the skull.

The mammæ and teats of this animal were greatly enlarged, and it was stated that she had given birth to a young one on the voyage up to Calcutta from Singapore. Mr. Fraser, who examined this Orang at its death, has recorded in the Museum Register that she had distinct indications of cheek swellings.

Presented by W. Rutledge, Esq., 10th August 1880.

h. A stuffed adult female, its skull and the bones of its trunk. This female exactly resembled the female *e* in its dark maroon, almost blackish long hair, directed forwards on the head. The face, like the foregoing, was blackish in life, and the eyes were small and brown, and no white sclerotic was visible. It was received in Calcutta, nursing a very young animal, said to have been its own child, and which is separately described.

The orbits are large and erectly oval. The interorbital area slopes forwards, as in the previous skulls, but the nasal area is not nearly so depressed as in them, and the muzzle is longer. From the upper end of the nasals, to the anterior border of the foramen magnum, is 3".50, and from the latter to the tip of the maxillary, measures 5".20. No temporal ridges, beyond a faint line on each side, indicating the attachment of the muscle and posteriorly converging on the parietals to within 0".35 of each other. The front upper incisors are much smaller than in the foregoing skull, and the molars are also less, and the palate is deeper. In the lower jaw there is a well-developed supernumerary molar on each side.

This individual had doubtless spent all its days in a wild state, dying shortly after its capture. Presented by W. Rutledge, Esq., 7th April 1877.

i. The flat skin and skeleton of the young of the previous individual. The hair on the body was sparse and bright ferruginous; dark maroon on the head, and long and directed forwards.

This animal had cut only its first incisors and first bicusps in the upper jaw. The fontanelle is closed, but the remains of the almost obliterated suture form a permanent raised line. This young animal died the same day as its mother. Presented by W. Rutledge, Esq., 7th April 1877.

j. The skin and skull, and bones of the trunk of an adult female like the preceding adult, but with somewhat shorter hair. The skull has all its teeth, but it is much smaller than

*e, g, and h.* Its incisors are very much smaller than those of either *e* or *g*, but the incisors of *h* are so much ground down that their original dimensions can only be guessed at, but they appear to have been about the size of those of this specimen. The muzzle, however, of *h* is very much larger than the muzzle of this skull and measures 2".50 across, while this muzzle is only 2".11 and very much shorter. The muzzle of *e* is 2".50, while that of *g*, in which the canines are only partially through, is as much as 2".40. The orbits of this specimen resemble those of *g*, but differ greatly in appearance from the vertically elongated orbits of *h*, which are 1".85 in vertical height as compared with 1".50 in this individual. These few details suffice to show how great is the individual variation among the skulls of Orangs, the animals of which were apparently identical in life.

There is a well-marked indentation on the left half of the parietal, and a long rugosity on the temporal ridge of that side. Presented by W. Rutledge, Esq., 3rd March 1879.

*k.* A stuffed female: general colour as in the previous females; *viz.*, dark maroon, but with short and somewhat sparse hair, probably due to the effects of confinement. Presented by W. Rutledge, Esq., 12th January 1870.

*l.* The flat skin and skeleton of a young male, dark maroon like the preceding animals. Although this Orang had cut only its first molar teeth below and above, its skull is as long as the female skull *j*, which conveys some idea of the great difference in size between the sexes. The general appearance of a male skull at this period is that of a female, there being no muscular ridges developed beyond the feeble temporal ridges, which are far apart. The orbits of this skull are large and obliquely placed ovals. Presented by W. Rutledge, Esq., 3rd March 1879.

*m.* A young male, in alcohol, with no trace of cheek excrescences, a rather large head, with a broad and deep muzzle, and with short and rather sparse hair. The hair short on the head, and deep maroon throughout. Presented by W. Rutledge, Esq., 20th March 1879.

*n.* The skin, skull, and bones of the trunk of a young male. General colour maroon, passing into bright ferruginous on the back, and still lighter on the back of the thighs, and darkest on the head and arms. The hair is long and distributed in the same way as in the foregoing animals, from which this individual differs only in its brighter colour, paler face, and fleshy colour around the eyes and about the mouth. This colouration of the face has distinguished, more or less, all the young Orangs that have passed under my observation,—they



exceed one hundred in number,—but as age advances the colour becomes darker, and the pale hue is entirely lost.

The first molar is through in both jaws, and it is large; and the other two are visible behind it. No ridges have formed. Extreme length of skull, occiput to front of premaxillaries, 7".05. Presented by W. Rutledge, Esq., 1st March 1876.

*o.* A young stuffed male like previous specimen: described by Mr. Blyth in a footnote<sup>1</sup> as No. 5, but not entered in his Catalogue. No history.

*p.* A young stuffed male like the preceding specimen, No. 4B of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1859.

*q.* The flat skin and skeleton of a young male like the preceding specimens. Total length of the skull 6".95; same age of dentition as in the last individual. Presented by W. Rutledge, Esq., 26th June 1875.

*r.* The skull, and skin of the head, of a young male. The skin of the head has been kept on account of the great length of the hair. The skull resembles the last skull, but the orbits are smaller and more rounded. The first and second molars are through, and the first upper incisor of the left side is nearly fully displayed, while the adjoining teeth are partially through. This skull in its dentition is of the same age as the skull of the dark-coloured male (*d*) with very large front upper incisors, but the total length of this skull is only 6".73, as compared with 7".60 in the skull *d*. Its breadth also is very much less, as it measures across the zygoma only 4".50 to 4".98 in *d*. The great differences that exist between the dimensions of these skulls are also shown in the length of the palate, which is 2".95 long in *d*, and only 2".50 in this skull. This animal was smaller in every way than the male *d*, and, like it, had no cheek swellings. This small Orang, however, cannot well be the *Mias kassir*, for one of the characters of that supposed species is its large incisors and molars, a distinctive feature of the larger of these two Orangs, *viz.*, of No. 3 *d*, and it is not probable that three species of Orang exist. I am, therefore, disposed to regard these differences only as individual, and there can be no doubt that they are very great, but not greater than the differences in dimensions of skull, and in the size of teeth, that exist among individuals of the various races of men. The next skull reveals also even greater differences of dimensions than in the case under consideration. Presented by W. Rutledge, Esq., 1st June 1880.

<sup>1</sup> Journ. As. Soc., Vol. XXII, p. 378, No. 5.

s. The skin, skull, and bones of the trunk of a young male of exactly the same external characters as the two previous animals, but with the skull very different from *m*. It has high oval orbits, but little concavity in the nasal region, whereas in the skull of *m* there is considerable concavity, and the orbits are more rounded, and the interorbital region more vertical than in this skull, which is also not nearly so full and rounded as in the parietal region. Although they are of the same age as regards their teeth, the skull measures only 6".77, whereas *m* is 7".05. The first molar is also considerably larger than the corresponding teeth of *m*. Presented by W. Rutledge, Esq., 19th May 1877.

t. A stuffed young female, No. 4C of Blyth's Catalogue. No history.

u. The skin, skull, and bones of the trunk of a young male, exactly like *m* and *o*. Milk dentition, but with the first molar through. Total length of skull 6".25. Molars large. Presented by W. Rutledge, Esq., 2nd December 1878.

v. The flat skin and skeleton of a young male. The hair in its colour and distribution is the same as in the preceding individuals. The total length of the skull is 6".20. The first and second molars are already through, but the latter only partially, and the upper permanent front incisors are also present. They are 0".59, broad, but not so large as the incisors of the male *d*. The molars are not so large as those of *o*, whereas its incisors are a little broader than the incisors of *o*, and, as in it, are much serrated. Presented by W. Rutledge, Esq., 1st June 1880.

w. The skin, skull, and bones of a young male. First molar through. Presented by W. Rutledge, Esq., 19th May 1877.

x. The flat skin and skeleton of a young male of the same character as the preceding young specimens. Milk dentition. Purchased, 20th October 1875.

y. The flat skin and skeleton of a young male, the same as in the foregoing individual. Milk dentition. Presented by W. Rutledge, Esq., 8th November 1880.

z. A stuffed young male like the preceding example. Presented by W. Rutledge, Esq., 2nd February 1874.

aa. A stuffed young male resembling the foregoing. Presented by W. Rutledge, Esq., 7th September 1870.

bb. The skin and skeleton of an adult female, Nos. 4 D and E of Blyth's Catalogue, exactly like the foregoing male *m*. This animal, which had lived 12 years in confinement, was described by Blyth as a new species, *P*.



*owenii*,<sup>1</sup> but in his Catalogue,<sup>2</sup> published afterwards, he regarded it as *S. morio*, but it has small front incisors. Moreover, the skull has not the form of the female skull of ferine Orangs, and I am disposed to regard its shape as abnormal, and the effects of a life of captivity. Presented by J. Apcar, Esq., 1846.

*cc.* The skin, skull, and bones of the trunk of a young female, having long dark maroon hair on the head, belly and limbs, and bright ferruginous on the sides, back, and hinder aspect of the thighs. The face dusky brown, with a pale area around the eyes and mouth: the same as the preceding female in the colour and length of its hair, and agreeing in all its details with the male *m.* The first molar is through, one upper incisor (left) and the two lower incisors, the latter being especially strongly serrated, there being one mesial eminence to the serrated edge, with two smaller ones on either side of it. The skull measures 6".45. Presented by W. Rutledge, Esq., 17th January 1876.

*dd.* The flat skin and skeleton of a young female, with external characters similar to the foregoing females. Skull 6".17 long. First molar through. Purchased, 18th February 1879.

*ee.* The flat skin and skull of a young female; the external characters the same as the preceding; skull 5".88 long. First molar through. Purchased, 3rd January 1870.

*ff.* The flat skin and skeleton of a young female, the same as the foregoing; skull 5".50. Milk dentition. Orbits very high. Presented by W. Rutledge, Esq., 26th April 1880.

*gg.* A stuffed young female, the skull not removed, but the animal externally inseparable from the foregoing specimens. Presented by W. Rutledge, Esq., 1st February 1874.

*hh.* The flat skin and skeleton of a young female with milk dentition; the same as the preceding. Purchased, 20th October 1869.

*ii.* The flat skin and skeleton of an individual similar to preceding one. Presented by W. Rutledge, Esq., 9th February 1874.

*jj.* A young male in alcohol, with long hair on the head directed forwards, and long hair on the body. General colour red, ferruginous on the body, darker on the head. Also more hair about the face than in *m.* The muzzle also is smaller, not so broad, although the dentition is in much the same state as

<sup>1</sup> Journ. As. Soc. Bengal, Vol. XXII (1853), pp. 37 to 75, pls. 9, 10.

<sup>2</sup> Cat. of Mammals, As. Soc. Mus., 1863, p. 4.

in *m*. The forehead also is higher than in *m*. Presented by W. Rutledge, Esq., 20th March 1879.

*kk*. A young ferruginous female in alcohol. Presented by Dr. J. Anderson, 21st January 1867.

*ll*. A young female similar to preceding, in alcohol. Presented by Dr. J. Anderson, 21st January 1867.

*mm*. A young male in alcohol, like preceding specimen. Presented by W. Rutledge, Esq., 4th January 1873.

*nn*. The skull of an adult male. Borneo. Regarded by Blyth as a female *Mias Rambi*, No. 3D of his Catalogue, described in Journ. As. Soc. Bengal, Vol. XXII, page 376, and measurements given in 3rd column, page 580 *l. c.*, and figured in pls. iii and iv, being one of the skulls described by Mr. Blyth as *P. brookei* (*l. c.*, page 375). Presented by Major Gregory, July 1838, Journ. As. Soc. Bengal, Vol. VII, page 669.

*oo*. A mounted skeleton of an adult male: No. 3E of Blyth's Catalogue: first described by Blyth as a fully mature female (?) of the *Mias pappan*, Journ. As. Soc. Bengal, Vol. XXII, p. 375, and afterwards as a youthful male *Pappan*, *op. cit.*, Vol. XXIV, p. 519, and in his Catalogue of Mammals, p. 3, as an adult male *Mias pappan*. Borneo. Presented by Mr. Wm. Nicholls of Sarawak, 1853.

*pp*. An imperfect skeleton of an adult male, considered by Blyth as a female *Mias pappan*; No. 3F of his Catalogue; and described, *op. cit.*, Vol. XXIV, 1855, pp. 518, 525. Borneo. Presented by Sir James Brooke, C.B., 1855. This specimen is distinguished by a supernumerary molar and by depressions on the skull. The right humerus of this animal had been fractured in life, the two ends of the fracture overlapping each other; a great mass of osseous tissue had been thrown out around them. The left fibula had also been fractured. This specimen has the eleventh rib of the right side firmly amalgamated to the vertebra, like a transverse process.

*qq*. The skeleton of an adult male considered by Blyth to be an adolescent male *Mias rambi*, with very large teeth, all the teeth being present and the incisors much worn. The temporal ridges meet on the vertex in a low ridge. The muzzle is heavy and protuberant. Described *op. cit.*, p. 523, No. 3G of Blyth's Catalogue. Borneo. Presented by Sir James Brooke, C.B., 1855.

*rr*. The skeleton of an aged male older than the previous specimen and regarded by Blyth as a mature male *Mias rambi*. No. 3H of his Catalogue, and described *op. cit.*, p. 324. It differs in its skull being broader across the malar



region than the previous specimen, in its protuberant muzzle being somewhat narrower, and in its sagittal and lambdoidal crests being much more developed. Sadong, Borneo. Presented by Sir James Brooke, C.B., 1855.

ss. The skeleton of an adult male sent by Sir James Brooke as a *Mias chapin*, was considered by Blyth to be a large old female *Rambi*, No. 3I of his Catalogue. It is remarkable for its large vertically elongated orbits, its rather feeble muzzle, and elongated face. The sagittal ridge is less developed than in the preceding specimen. Described by Mr. Blyth *op. cit.*, p. 521. Sadong, Borneo. Presented by Sir James Brooke, C.B., 1855.

tt. The skeleton of an adult male considered by Blyth to be a small, but full-grown, female *Mias rambi*, although it had been sent as a *Mias pappan*. No. 3J of Blyth's Catalogue. Described *op. cit.*, pp. 522, 523. Sadong, Borneo. Presented by Sir James Brooke, C.B., 1855.

uu. The skeleton of a mature male described by Blyth as a fully mature female *Rambi*, *op. cit.*, p. 523: No. 3K of Blyth's Catalogue. Much the same as the previous specimen, but with the sagittal crest not developed. In this skeleton the twelfth rib of each side is united to its vertebra and resembles a transverse process. Borneo. Presented by Sir James Brooke, C.B., 1855.

vv. The skeleton of an adult male; No. 3Q of Blyth's Catalogue: described by Blyth, *op. cit.*, pp. 520, 526, as *Pithecius cartus*. Borneo. Presented by Sir James Brooke, C.B., 1855.

ww. The imperfect skeleton of an adult female, No. 4A of Blyth's Catalogue, described by him as *P. morio*, in the Journal of the Asiatic Society of Bengal, vol. XXII, p. 371, plates VII and VIII. Very different from the foregoing male skulls in the absence of muscular ridges. It has all the characters of the skull figured by Owen as *S. morio*<sup>1</sup>: incisor 0"·50 broad, but the molars are not large. Skull 7"·40 long. Said to be from Borneo. Presented by R. W. G. Frith, Esq., 1836.

xx. The skull of a young animal cutting its permanent incisors and second molar. Upper incisors broad, 0"·60, and much serrated. Lower incisors very irregularly placed. No. 3L of Blyth's Catalogue. Length of skull 6"·35. Donor unknown.

yy. A young skull bisected, No. 3M of Blyth's Catalogue, retaining deciduary incisors. Length of skull 6"·50.

<sup>1</sup> Trans. Zool. Soc. 1841, Vol. 11, p. 168.

22. The skull of a younger specimen: first molar appearing. No. 3N of Blyth's Catalogue. Length of skull 5".95.

aaa. The skull of a young animal not in Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1863. Length 6".22.

bbb. The skull of a young animal not in Blyth's Catalogue. Length 6".05.

ccc. The skull, and the brain in alcohol, of a young animal with milk teeth and first molar. Skull cap cut away to permit of the removal of the brain. Length of skull 6". Purchased, July 1867.

ddd. The skull of a young animal with the first permanent molar through. The outer plate of the right maxillary and of the mandible has been removed to show the relation of the permanent to the deciduary teeth. Length 5".88. No history.

eee. The skull of a young male with milk teeth only. Length of skull 5".52. Purchased, 17th October 1870.

fff. The skull of a young male with milk teeth. Length 5".43. Purchased, August 1865.

ggg. The skeleton of a young male with milk dentition. Length of skull 5".40. Presented by W. Rutledge, Esq., 26th June 1875.

hhh. The skull of a young animal with milk dentition. Length of skull 5".10. Purchased, 5th January 1878.

iii. A right *scaphoid*, *lunare*, *unciform*, *magnum* and *cuneiform*, in duplicate, marked 3ww. Left *scaphoid*, 2 *lunare*, 2 *unciform*, 2 *magnum*, and 2 *cuneiform* bones marked 3xx.

Right *calcaneum*, *astragalus*, *naviculare*, *cuboid*, *cuneiform*, and *ecto-cuneiform*, in duplicate, marked 3yy.

Left *calcaneum*, *astragalus*, *naviculare*, *cuboid*, *cuneiform*, and *ecto-cuneiform* in duplicate marked 3zz.

2nd, 3rd, 4th, and 5th metacarpals of right hand, marked 3aaa. 1st, 3rd, 4th, and 5th metacarpals of right hand, marked 3bbb. Right 4th metacarpal, marked 3ccc; right 3rd metacarpal, marked 3ddd. 1st to 5th left metacarpals, marked 3eee. Left 1st and 2nd metacarpals, marked 3fff. Left 4th and 5th metacarpals, marked 3ggg. Right metacarpals 1st to 5th, marked 3hhh. Right metacarpals 1st to 5th, exclusive of 4th, marked 3iii. Left metacarpals 1st to 5th, marked 3jjj. Left 1st to 5th metacarpals, marked 3kkk. Thirty-one 1st phalanges of hands and feet, marked 3lll. Thirteen 2nd phalanges of hands and feet, marked 3mmm. Twenty ungual phalanges of hands and feet, marked 3nnn. Borneo. Presented by Sir James Brooke, C.B., 1855.



*jjj*. A dried right hand. No history. Marked 3000.

*kkk*. A preparation of penis of the *3a*, displaying the penial bone 0"-50 in length, situated in the distal end of the organ.

The foregoing seven skeletons from Borneo, presented to the Asiatic Society of Bengal by Sir James Brooke, were described by Mr. Blyth in 1855, three as males and four as females, and he remarked,<sup>1</sup> "There is no reason to doubt the correct determination of sex in any of the specimens." To one, however, conversant with the great differences in size and form that exist between the skulls of the two sexes of Orangs there is every reason to doubt that any of them are females. The skulls of these skeletons are all distinguished by the characteristic features of the male sex, great size, strong muscular ridges, and huge canines, and all present a common likeness to the skull *3a*, which is certainly known to be the skull of an adult male Orang-outang, which in life was distinguished by the enlargement of his cheeks into huge bare excrescences.

The variations presented by these skulls in the extent to which the external margins of their orbits are developed, the breadth across their orbits, the form of the orbits, the length of the muzzle, the degree of concavity of the profile, the zygomatic breadth, the degree of convergence of the temporal ridges, the arch of the frontals and of the parietals, the length, depth, and form of the palate, the depth of the symphysis, the height and breadth of the ascending ramus of the lower jaw, and the dimensions of the teeth, are very great and amply justify the application to them of the remark made by Wallace<sup>2</sup> regarding the Orangs collected by himself in Borneo, that they manifest differences as decided as those existing between the most strongly marked forms of the Caucasian and African crania in the human species.

When Mr. Blyth catalogued the mammals in the Museum of the Asiatic Society of Bengal,<sup>3</sup> the only two adult female Orangs then existing in the collection he referred to the supposed species *S. morio*, Owen,<sup>4</sup> which was founded on a female Orang skull, whereas all the males were referred by him to *S. satyrus*. Two adult, or nearly adult, females have been

<sup>1</sup> Journ. As. Soc. Bengal, Vol. XXIV, 1855, p. 518; *op. cit.*, p. 528.

<sup>2</sup> Ann. and Mag. Nat. Hist., Vol. VII, 1856, p. 472.

<sup>3</sup> Cat. Mamm., As. Soc. Mus., Vol. V, 1863, p. 4.

<sup>4</sup> Trans. Zool. Soc. Lond., 1841, Vol. II, p. 168, pls. 33 and 34.

added to the Museum since then, but all of them have the features which distinguish the skull figured by Owen as *S. morio*. Among the other numerous additions which have been made towards the illustration of this anthropoid ape, three skulls, nearly the same size as the adult female skull and thus resembling the skull named *S. morio*, are the skulls of adolescent males, their milk teeth being only partially shed. Each of these skulls thus still possessed a great capacity for growth. In four still younger male skulls, nearly equalling in size the adult female skull, but yet with milk incisors and canines, the likeness between the sexes, notwithstanding the disparity of age, is very great; the after-divergence, however, is enormous. After a careful and repeated consideration of the foregoing specimens, skeletons, and skins, the same conclusion has always been arrived at, that these materials are all referable to one large species of Orang-outang so far as the adult males and females, and probably also the adolescents and young, are concerned. As indicated above, there would, however, appear to be a dark and pale variety.

Some of the males of the dark race had cheek excrescences, while others had not, whereas none of the males of the pale variety manifested any trace of such facial enlargements. I have observed these cheek excrescences beginning to show themselves in a baby dark-coloured male Orang, and have also seen them in another young male of the same colour, probably 6 years of age.

In 1841 Sir James Brooke<sup>1</sup> stated that the *Mias rambi* of Borneo was taller than the *Mias pappan*, which is the Bornean race provided with cheek excrescences, and that the *Rambi* was destitute of those structures. Wallace<sup>2</sup> also mentions that the Dyaks of North-Western Borneo have names for three species of *Mias*, although he could never find any one who could determine them with precision. The Dyaks say that the *Mias rambi*, which has very long hair, equals the *Mias chappan* or *pappan* in size, but that it has no cheek excrescences. Wallace, however, regarded the *Mias rambi* as probably only rare examples of the large species in which the excrescences have been little or at all developed. In the "Malay Archipelago" no mention is made of the *Mias rambi*, nor indeed of Orangs without cheek excrescences equalling in dimensions those provided with these structures: all the Orangs, *Mias*

<sup>1</sup> Proc. Zool. Soc. London, p. 55.

<sup>2</sup> Ann. and Mag. Nat. Hist., 1856, Vol. XVII, p. 475.



*kassir*, which had no excrescences, were much smaller animals than those which had them and were referred by Wallace to *S. morio*.

Wallace does not give any detailed description of the skull of the males he referred to *S. morio*, but he says, "It is smaller and weaker, and the zygomatic arches narrower than in the large species; it has no bony crest, but two faint ridges from  $1\frac{3}{4}$  inch to 2 inches apart, exactly as in the *S. morio* of Prof. Owen, figured in the 'Transactions of the Zoological Society.' The teeth, however, are, in proportion to the skull, of immense size, equalling, and in one case surpassing, those of the larger animals; the molars extending further backward, and the incisors and canines being set closely together, room is found for them in a much smaller jaw." The only skulls in this Museum corresponding generally to the foregoing description are those of female Orangs.

One adult male skull, 300, resembling, in size and in the development of its zygomatic and orbital ridges, the skull of the adult 3a with cheek excrescences, differs from it and resembles *S. morio* in the temporo-parietal ridges being far apart. Although this feature of *S. morio* occurs in this skull, there can be no doubt of the specific identity of the skull with the individual 3a or with *S. satyrus*, and Mr. Blyth records that Mr. Nicholls, who presented this Orang to the Asiatic Society of Bengal, stated that, if he remembered rightly, the skeleton had been given to him as that of a male, full grown, but not aged, and with a very broad face—a description which evidently indicates that the animal was an Orang with cheek excrescences. The non-union of the temporo-parietal ridges to form a sagittal ridge would appear in the case of male Orangs to be generally a sign that the animal had not attained full maturity. This skull has all its permanent teeth perfectly fresh and unground, and a few more years of masticating activity would probably have brought the ridges together. Even in female skulls referable to *S. morio*, the feeble lines indicating the temporal ridges tend to meet on the vertex in the fully adult animal, and in one skull the ridges are only separated by an interval of  $0^{\circ}40$ , which, in all likelihood, would have disappeared with increased age; whereas in a female, with the last molar only cutting the gum, these ridges are  $0^{\circ}50$  apart. At the same time, in some cases, feeble development of the lower jaw, as pointed out by Mr. Wallace, associated with a small zygomatic aperture and a large cranial surface, contributes to keep the temporal ridges

apart; but these conditions cannot be regarded as the chief cause of separated temporal ridges in Orang skulls, and, moreover, in the skull 300 they do not exist, and yet the ridges are far apart.

In the old male 3pp, in its general features also resembling the skull 3a, the fronto-parietal ridges remain far apart, even although the animal is aged. The area, however, between the ridges is covered with deep indentations—an abnormal condition which may have contributed to the non-union of the ridges.

The male skeletons also exhibit almost quite as much variation in the length of their long bones as is manifested by the skulls, in the particulars already indicated. One is so remarkable for the shortness of its limb bones that Mr. Blyth at first regarded it as a new species which he designated *S. curtus*, but afterwards, when he had reviewed all the materials at his disposal, he sunk the name in his catalogue as a synonymy of *S. satyrus*.

The skull 3pp is remarkable for the number of depressions on its frontal, as well as on its parietal, region. They apparently resemble those described by Professor Humphry<sup>1</sup> as occurring in an Orang from Borneo in the Anatomical Museum of the University of Cambridge. There is a remarkable degree of similarity between the two skulls, and they further resemble each other in having the temporal ridges apart and in possessing supernumerary molars.

The depressions in this skull are chiefly confined to the interspace between the ridges, but they occur without any symmetry. There is one large depression on the parietal, immediately behind the left superciliary ridge 0"·70 long and 0"·65 broad, with another still deeper depression behind it, 0"·30 long and 0"·75 broad. A little removed from the right superciliary ridge is a long partially-interrupted depression 1"·55 long and 0"·50 broad, which may be regarded as the equivalent on this side of the depression just described, and from which it is separated by a prominent eminence. All of these depressions occur on the frontal, but immediately behind them there is another depression occupying the mesial line of the skull, on the beginning of the parietal, 0"·80 broad and

<sup>1</sup> Journ. Anat. and Phys., Vol. VIII, 1874, p. 136, Pl. VII, figures 4, 5 and 6. The specimen described by Professor Humphry is stated to have been a female, but the figure in which the canines are represented as large would seem to indicate, along with the general characters of the skull, that the animal had been a male.



0" 85 long, and still another on the posterior portion of the parietal close to the posterior end of the left temporal ridge. There is no trace of a sagittal suture. Nearly opposite to the first depression on the parietal, but immediately external to the left temporal ridge, there is another and sixth depression which seems to make itself felt along the inner side of the left temporal ridge. On making two transverse sections through these depressions and the intervening elevations, it is found that in the last of the depressions there is considerable thinning away of the walls of the skull, the cancellated substance having disappeared, and nothing but the hard tables remaining, in some places not thicker than 0" 05; so that, had the thinning been carried a little further, the skull might have presented the anomalous appearance of a series of openings in deep depressions.<sup>1</sup> In such instances the depression is fully 0" 10 in depth, and the walls of the skull on either side of it are fully 0" 20 thick, with the diploe well developed. Between the depressions of either side is an elevated, but flattened, area, occupying the middle of the frontal. On the inner surface of the skull there are no concavities corresponding to the external depressions, but there is one small circular pit about 0" 30 in diameter underlying the thickened area on the frontal. These defects in the skull appear to be due to an imperfection in the ossifying process, as stated by Professor Humphry, in consequence of which those parts of the skull are left thin.

It will be observed that these depressions, as in the instances cited by Professor Humphry in Man and in the Orang, do not occur in the course of the sagittal suture nor on the eminences of the frontal.<sup>2</sup>

Finding these depressions, in the two instances recorded,

<sup>1</sup> The skull of a female New Hollander in this Museum has one great parietal depression on the left side of the same nature as those in the Orang described above, another but smaller depression on the right side, and about six other irregular depressions on the left side. The first-mentioned depression is thinned away at its bottom to 0" 03.

<sup>2</sup> In the foregoing New Holland skull the largest of the left parietal depressions involves the left parietal eminence.

In the Museum of the Medical College the skull of a young female Orang presents a simple depression on the commencement of the sagittal suture, and another slight one 0" 70 by 0" 50, which has its outline well defined by a clear difference in the texture of the depression and that of the surrounding parts. The depressed area is very dense and almost porcelainous. This skull also presents two deep pits on either side of the foramen magnum. The lambdoidal and sagittal sutures are obliterated, but the skull is very small, although it has got its lower permanent and its middle upper incisors.

associated with separated temporal ridges and an abnormal number of teeth, Orang skulls presenting any of these characters, either singly or in association, should be carefully observed.

Supernumerary teeth occur on both the upper and lower jaws of the left side. In the former the supernumerary tooth is a small erect two-fanged cylindrical tooth with two cusps. The normal last molar is deformed, consisting of three distinct internal cusps, with a large external cusp equalling the conjoint dimensions of the three former. In the skull described by Professor Humphry the additional tooth occurred on each side of the upper jaw, and, although smaller than the other teeth, both were well formed and with the normal number of fangs.

The supernumerary tooth in the lower jaw is quite as large as the last molar and has its crown directed forwards to the right side, as in the Orang skull described by Professor Humphry, due to the circumstance that it is set in the base of the coronoid process. From its position its crown could never be brought into use, but the hinder margin of the cingulum is partially worn away by friction against the upper supernumerary tooth.

The female skull 3 $\frac{1}{2}$  has a well-formed additional molar behind the normal last tooth on each side of the lower jaw, each perfectly erect and in no way out of position.

Among these adult male Bornean skulls there is considerable variation, not only in the breadth of the front upper incisors, but in the length of the dental line from the premolar to the last molar, and in the dimensions of the molars, and in some skulls more particularly of the last molar.

Throughout the series there is considerable diversity in the extent and form of the nasal bones. In the skull 3 $vv$  the nasals are 1".45 long, expanding from 0".25 to 0".50, their greatest width. In the skull 3 $pp$  these bones show a decided tendency to unite with the maxillaries, whereas in skull 3 $ss$  the nasals are little, if at all, expanded below, and are 1".80 long with a maximum width of 0".35, exhibiting no tendency whatever to union either with the frontal or maxillaries. In the skull 3 $tt$  the maxillaries form a broad suture between the orbits, and the nasals disappear, being represented by a small azygos bone 0".55 in length and 0".18 in greatest breadth, so that it is quite possible that occasionally in Orangs the nasals may be suppressed or lost in the maxillaries, so insignificant is their fragmentary representation in the skull.



*Measurements of Skulls and Skeletons of Orangs, male and female.*

	3 D. 3mm	3 E. 3mm	3 F. 3mm	3 G. 3mm	3 H. 3mm	3 I. 3mm	3 J. 3mm	3 K. 3mm	3 Q. 3mm	4 A. 3mm	4 D. 3mm	3 A. 3mm	3 L. 3mm	3 M. 3mm
	♂	♂	♂	♂	♂	♂	♂	♂	♂	♀	♀	♀	♂	♂
Depth of the skull from the vertex to the base of the occipital condyle . . . . .	3.95	3.80	3.87	3.84	3.80	3.85	3.75	3.68	3.45	3.50	3.65	3.53	3.70	3.50
Length of the skull from the occiput to the margin of the premaxillaries . . . . .	8.80	9.10	8.47	8.45	8.75	9.10	8.73	8.45	8.40	7.40	7.13	7.55	7.40	7.05
Length of the skull from the occiput to the fronto-nasal suture . . . . .	5.30	5.45	5.20	4.00	5.30	5.15	5.30	5.17	5.00	4.69	4.30	4.88	4.93	4.85
Length of the skull from the fronto-nasal suture to the margin of the premaxillaries . . . . .	4.25	4.10	4.03	3.95	4.00	4.00	4.00	3.90	3.80	3.50	2.80	3.80	3.60	2.55
Greatest lateral diameter of the skull at the post-auditory ridges . . . . .	5.18	5.05	5.46	5.40	5.00	5.00	5.53	6.00	5.30	4.80	4.80	4.35	4.35	4.50
Smallest lateral diameter of the skull behind the orbits . . . . .	2.25	2.25	2.30	2.00	2.30	2.50	2.15	2.19	2.15	2.30	2.60	2.20	2.15	2.25
Distance between the temporal ridges . . . . .	...	1.30	0.75	...	...	...	0.20	...	...	0.60	2.10	0.35	1.60	3.05
Diameter of the skull at the zygoma . . . . .	6.30	6.43	6.52	6.25	6.80	6.33	6.40	6.53	6.90	5.25	4.95	5.25	4.85	4.50
Length of the zygomatic fossa . . . . .	2.20	2.28	2.10	1.00	2.42	2.40	2.05	2.10	2.00	1.79	1.50	1.70	1.70	1.53
Diameter of skull taken between the outsides of the orbits . . . . .	4.37	4.40	4.70	4.90	4.80	4.40	4.30	4.30	4.60	3.7	3.91	3.68	3.57	3.05
Breadth of the interorbital space . . . . .	0.50	0.45	0.44	0.63	0.65	0.50	0.55	0.62	0.60	0.40	0.54	0.50	0.35	0.30
Transverse diameter of the orbital cavity . . . . .	1.44	1.40	1.43	1.50	1.44	1.42	1.30	1.45	1.42	1.21	1.30	1.30	1.15	1.20
Vertical diameter of the orbital cavity . . . . .	1.65	1.63	1.68	1.60	1.50	2.00	1.31	1.67	1.61	1.50	1.40	1.70	1.32	1.55
Vertical diameter of the nasal aperture . . . . .	1.30	1.20	1.27	1.40	1.35	0.45	1.32	1.40	0.30	1.20	0.85	1.30	0.94	1.15
Transverse diameter of the nasal aperture . . . . .	0.90	0.81	0.75	0.85	1.00	0.92	0.87	0.95	0.86	0.85	0.70	0.81	0.74	0.62
Interspace between the infra-orbital foramina . . . . .	1.92	...	1.59	1.80	2.17	1.90	1.77	1.60	2.10	1.70	1.43	1.77	1.50	1.45
Distance between the inferior margin of the nasal bone and the inferior margin of the premaxillary . . . . .	2.70	2.72	2.65	2.70	2.60	2.80	2.75	2.60	2.45	2.30	1.88	2.50	1.60	1.84

From the anterior margin of the occipital foramen to the posterior margin of the bony palate . . .	3.30	3.25	2.80	2.85	3.40	3.46	3.35	3.35	3.20	2.70	2.55	2.40	2.34	2.35	2.38
Length of the bony palate along the mesial line . . .	3.55	3.75	3.25	3.50	3.55	3.35	3.23	3.30	3.12	2.65	2.87	2.82	3.05	2.50	2.48
Breadth of palate between canines . . .	1.56	1.50	1.45	1.50	1.70	1.57	1.46	1.40	1.50	0.35	1.40	1.50	1.08	1.51	1.00
" " last molar . . .	1.53	1.50	1.20	1.50	1.50	1.40	1.15	1.50	1.23	1.33	1.40	1.45	0.50	...	...
From the anterior margin of the intermaxillary bones to the anterior palatine foramina . . .	0.91	1.15	1.00	1.10	0.80	0.80	1.00	0.90	1.00	0.85	0.72	0.70	0.85	0.59	0.76
Breadth of the crown of the first incisor, upper jaw . .	0.62	0.56	0.50	0.57	0.62	0.60	0.55	0.53	0.46	0.50	0.50	0.43	0.62	0.43	0.45
" " second " " . . .	0.38	...	0.30	0.30	0.30	0.35	0.40	0.35	0.30	0.35	0.35	0.35	0.36	0.33	0.24
Breadth of the incisors <i>in situ</i> . . .	1.60	...	1.50	1.75	1.80	1.63	1.60	1.60	1.45	1.45	1.08	1.50	1.55	1.50	1.28
Longitudinal extent of molars and bicuspids of one side, upper jaw . . .	2.15	2.25	2.10	2.37	2.20	2.20	2.10	2.18	2.05	2.05	2.05	2.00	2.15	...	...
Length of crown of upper canine . . .	0.65	1.20	...	1.25	0.90	0.87	0.90	1.20	...	0.42	0.68	0.40	0.60	...	...
Breadth of " " " " . . .	0.70	0.66	0.50	0.72	0.65	0.65	0.60	0.70	0.57	0.52	0.60	0.50	0.55	...	...
Length of the lower jaw from the condyle to the anterior surface of the sockets of the incisors . . .	6.35	6.78	6.25	6.40	6.95	7.15	6.30	6.17	6.60	5.65	5.49	5.80	5.45	4.87	4.85
Length of canine, lower jaw . . .	0.86	1.00	...	1.00	0.95	0.85	0.86	0.85	...	0.45	0.85	0.62	0.70	...	...
Greatest breadth of " . . .	0.60	0.60	0.55	0.73	0.57	0.55	0.50	0.60	0.53	0.44	0.54	0.45	0.49	...	...
Breadth of ascending ramus . . .	2.64	2.70	2.50	2.45	2.90	2.63	2.70	2.70	2.80	1.80	1.08	2.00	3.10	...	...
Length of right humerus . . .	...	14.30	...	14.10	15.60	16.25	13.85	15.05	13.00	12.85	...	...	...	...	...
" of " radius . . .	...	14.30	...	13.78	15.00	16.10	13.50	14.90	13.50	13.25	...	...	...	...	...
" of " ulna . . .	...	15.10	...	14.70	15.60	16.00	14.20	15.40	13.20	13.30	...	...	...	...	...
" of " femur . . .	...	10.60	...	10.20	11.30	11.33	10.45	11.70	10.00	9.90	...	...	...	...	...
" of " tibia . . .	...	9.40	...	9.00	10.00	10.80	9.00	9.90	9.10	8.80	...	...	...	...	...
" of " fibula . . .	...	8.60	...	8.20	9.10	9.40	...	9.10	8.50	8.05	...	...	...	...	...



4. *Simia abelii*.

Ourang-outang of Sumatra, *Clarke Abel, As. Resch.*, vol. xv, 1825, p. 489, pls. 1 to 3, and IV & V.

*Simia abelii, Fischer, Syn. Mamm.*, 1829, p. 10.

*Pithecus satyrus, Evans, Journ. As. Soc. Bengal*, vol. vii, 1838, p. 669, *partim*.

*Simia gigantea, Pearson, Journ. As. Soc. Bengal*, vol. x, 1841, p. 660.

*Pithecus bicolor, Is. Geoff. Atti della terza riun. d. Scienz. Ital.*, 1841; *ibid.*, *Arch. du Mus.*, t. ii, 1841, p. 526.

Sumatran Orang-outang.

*Hab.* Sumatra.

4a. The lower jaw, No. 3B of Blyth's Catalogue, of the large individual first described by Dr. Clarke Abel in the Asiatic Researches, Vol. XV, 1825. This jaw was figured in the same work, Plates IV and V, and again figured, half natural size, in the Journ. As. Soc. Bengal, Vol. VI, Plate XVIII. Described by Mr. Blyth, *op. cit.*, Vol. XXII, 1853, p. 374. This specimen is very much smaller than the jaw of the next skull. The former measures only 6".55 in the extreme length of the jaw, whereas the latter is no less than 7".60. The condyle of Dr. Clarke Abel's specimen is only 3".50 above the inferior line of the horizontal ramus, whereas in the next individual the measurement is 4".90. The coronoid process of the former is only 3".90, while in the latter it is 4".70, the breadth of root of the ascending ramus in Dr. Clarke Abel's animal being 2".30 to 2".65 in next specimen. There is no perceptible difference in the length of the dental line of the two jaws, but this jaw is enormously larger than the other. The symphysis in Dr. Clarke Abel's specimen is only 2".60, and in the next skull it is as great as 3".05. The form of the jaws is much the same, and although the smaller jaw has all its teeth, the teeth are not worn, whereas in the other massive jaw the teeth are considerably worn. I am therefore disposed to attribute the difference in size solely to individual peculiarities. Presented by Captain Cornfoot, 1822.<sup>1</sup>

<sup>1</sup> The stuffed skin of Dr. Clarke Abel's specimen from the north coast of Sumatra, presented by Captain Cornfoot, *As. Researches*, Vol. XV, App. p. 32, 1822, and described in the Asiatic Researches for 1825, in which the head, lower jaw, teeth, hand and foot are figured, was not in the Asiatic Society's Museum when I took charge of it for the Trustees of the Indian Museum.

Owen has stated that the Sumatran Orang has no cheek excrescences, but

b. The skull of an adult male. Sumatra. No. 3C of Blyth's Catalogue: described by Pearson as *S. gigantea*, Journ. As. Soc. Bengal, Vol. X, p. 660, and the measurements given by Mr. Blyth, *op. cit.*, Vol. XXII, p. 380, tab. No. 2, and figured *l. c.*, Plates I and II. The skull is much more massive than any of the skulls of *S. satyrus* and distinguished from them by the great depth of the malo-maxillary area, which is flat and much expanded, and measures 2 inches in height, whereas in the skulls referred to *S. satyrus* it is seldom above 1"·42 in depth. The muzzle also is very powerful, and the canine ridges enormous. The breadth across the front of the orbital region is greater than in the foregoing skulls of *S. satyrus*, and the superciliary ridges are much more developed. The orbits are irregularly vertically oval. The temporal ridges are strongly marked and form a prominent sagittal ridge. The zygomatic arch is strong, and the lower jaw very massive, with a broad ascending ramus. This skull corresponds so closely to the figure of the skull described by Professor Owen<sup>1</sup> that there can be no doubt of their specific identity.

## II.—SUB-FAMILY HYLOBATINÆ.

GENUS HYLOBATES, Illiger, 1811.

### 5. *Hylobates syndactylus*.

*Simia syndactylus*, Raffles, *Trans. Linn. Soc.*, vol. xiii, 1822, p. 241.

*Pithecius syndactylus*, Desmarest, *Mamm.*, 1820, p. 531.

*Hylobates syndactylus*, F. Cuv., *Hist. Nat. des Mammif.* livr<sup>n</sup>. xxxiv, Novembre 1821.

*Siamanga syndactyla*, Gray, *Cat. Mamm. B. M.*, 1843, p. 1.

*Hylobates* (*Siamanga*) *syndactylus*, Anderson, *Anat. and Zool. Resch., and West. Yunnan Expd.*, 1878, p. 10.

*Hab.* Sumatra and Malayan Peninsula.

5a. A young male stuffed: its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 24th June 1873.

b. The skin of an adult female and the bones of its trunk. Presented by W. Rutledge, Esq., 24th June 1873.

c. A young male stuffed, and its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 16th August 1873.

Mr. Blyth distinctly mentions that the skin of Dr. Clarke Abel's specimen possessed cheek excrescences, but less developed than in the Bornean male (*Journ. As. Soc. Beng.*, Vol. XXII, 1853, p. 370).

<sup>1</sup> Trans. Zoological Soc. Vol. I, 1835, Pl. 53.



*d.* An adult female stuffed: its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 29th September 1873.

*e.* The ligamentary skeleton of an adult male. Presented by W. Rutledge, Esq., 19th April 1874.

*f.* The skeleton and flat skin of a young male. Presented by the Zoological Gardens, Calcutta, 26th June 1880.

*g.* The skin and skull of a young male. Presented by W. Rutledge, Esq., 29th November 1880.

#### 6. *Hylobates hoolock*.

The Fifé Nieuhoff, *Recueil des Voyages, &c.*, t. iii, 1716, p. 168.

The Golock, *De Visme, Philosoph. Trans.*, vol. lix, 1769, p. 72.

The Gulok, *Pennant, Hist. Quad.* vol. i, 3rd ed. 1793, p. 185.

The Voulock, *Allamand, Buffon, Hist. Nat.* (Sonnini ed.), t. xxxv, (1809), p. 140.

The Hoolock, *McClelland, Proc. Zool. Soc.*, 1839, p. 148.

*Simia* lar, *Philosoph. Trans.*, vol. lix, 1769, p. 607.

*Simia* hoolock, *Harlan, Trans. Amer. Phil. Soc.*, vol. iv, new ser., 1834, p. 52, pl. 2 (animal & skull).

? *Hylobates niger*, *Ogilby, Proc. Zool. Soc.*, 1840, p. 20.

*Hylobates hulok*, *Wagner, Schreber, Säugeth. Suppl.*, Bd. i (1840), p. 76; vol. v, 1855, p. 20.

*Hylobates hoolock*, *Lesson, Sp. des Mammif.*, 1840, p. 54.

*Hylobates chronomandus*, *Ogilby, Proc. Zool. Soc.*, 1837, p. 689.

*Hylobates scyritus*, *Ogilby, Madr. Journ. Lit. & Sc.*, vol. xii, 1840.

*Hab.* Assam; extending into the Eastern Himalayas (Bhutan), also to upper portion of the valley of the Irrawadi, and into the hilly country to the east of that river at Bhamo, and from Manipur and Cachar into Northern Arakan.

*6a.* A stuffed adult male, and its articulated skeleton: Nos. 5 A and H of Blyth's Catalogue. Entirely black, with the exception of a white supercilium. From the Barrackpore Menagerie, 1842.

*b.* A stuffed adolescent male, same as preceding specimen, and its articulated skeleton: Nos. 5 B and I of Blyth's Catalogue. From Barrackpore Menagerie, 1842.

*c.* A stuffed adult female, brown above, darker on the under parts, sides of face, hands and feet. No. 5D of Blyth's Catalogue. Presented by Lieutenant-Colonel R. S. Tickell, 1842-49.

*d.* A stuffed adult female: the same as *c.* No. 5F of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur.

*e.* A stuffed adult female: pale yellow above and light brown below, and blackish on the fingers and toes. No. 5E of Blyth's Catalogue. Assam. Presented by S. G. T. Heatly, Esq.

*f.* A stuffed young female: dark brown, but lighter on the back and outside of the limbs. Arakan. Presented by Sir Arthur P. Phayre.

*g.* The skin of a young male: black. Purchased, September 1866.

*h.* A stuffed young black female. Purchased, 19th May 1868.

*i.* The skin of a young black male. Purchased, 29th May 1869.

*j* and *k.* A stuffed young male and female, both black. Assam. Presented by W. Rutledge, Esq., May 1870.

*l.* A stuffed adolescent black male. Assam. Presented by H. F. Blanford, Esq., 16th July 1870.

*m.* A stuffed adolescent female, with greyish head. Assam. Presented by W. Rutledge, Esq., 29th April 1871.

*n.* The skin of a young black male. Presented by W. Rutledge, Esq., 16th June 1871.

*o.* The skin of a young female: dark blackish-brown, lighter on the back and on the sides of the face: beard greyish. Presented by W. Rutledge, Esq., 24th June 1871.

*p.* The skin of a young male: blackish brown on the back, and sides of the face and middle of chest. Presented by W. Rutledge, Esq., 30th June 1871.

*q.* The skin and bones of the trunk of a nearly adult female: pale yellow above, and light brown below and on the sides of the head. Cachar. Museum Collector, 1867-68.

*r.* A characteristic adult male, jet black, with white supercilium. Samaguting, Assam. Presented by Captain J. Butler, October 1872.

*s.* A young, pale yellow female, in alcohol. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.

*t.* The ligamentary skeleton of a young male. The general colour of this gibbon was yellow, but the belly and inside of the limbs were brown. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.

*u.* The ligamentary skeleton of a young male, like the preceding specimen. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.

*v.* The skin and ligamentary skeleton of a young male, the same as the two preceding specimens. Cachar. Presented by C. Brownlow, Esq., 2nd August 1872.



w. An imperfect flat skin of a black male. Hotha, Western Yunnan. Dr. J. Anderson. Presented by the First Expedition to Western Yunnan, 1868.

x. Another similar male skin. Teng-yue-chow, Yunnan. Dr. J. Anderson. Presented by the First Expedition to Western Yunnan, 1868.

y. The skin of a young female, also its skull and the bones of its trunk. Presented by W. Rutledge, Esq., 17th April 1877.

z. The skin, skull, and bones of the trunk of an adult female: greyish yellow above and blackish brown below, and on the sides of the head and on the fingers. Presented by the Zoological Gardens, Calcutta, 19th May 1877.

aa. The skin and skull of an adult male. Presented by W. Rutledge, Esq., 26th May 1879.

bb. The skin and skull of a young female. This specimen has the head and back greyish yellow; this colour also occurring here and there on the limbs and along the mesial line of the under surface of the body. This individual marks the transition from black to pale yellow, a colour which frequently occurs in adult females. Tipperah. Presented by the Zoological Gardens, Calcutta, 28th August 1879.

cc. The skin and skull of a young black female. Presented by W. Rutledge, Esq., 10th April 1880.

dd. A young skull, No. 5I of Blyth's Catalogue.

ee. A young skull, No. 5L of Blyth's Catalogue.

ff. A young skull, No. 5M of Blyth's Catalogue.

gg. A young skull, No. 5K of Blyth's Catalogue.

hh. The skull of a young animal. Gáro Hills. Presented by Lt.-Colonel H. H. Godwin Austen, 13th June 1870.

ii. The skull of a young animal. No history.

jj. The skeleton of a young male. Purchased, 12th June 1869.

kk. The ligamentary skeleton of an adolescent male. Purchased, 6th June 1869.

#### 7. *Hylobates* lar.

*Homo* lar, Linn., *Mantissa Plant.* 1771, Append., p. 521.

*Simia longimana*, Schreber, *Säugeth.* Bd. i, 1775, p. 66, pl. iii, fig. 1 (Buffon).

*Simia* lar, Gmelin, Linn. *Syst. Nat.* 13th ed. 1788, p. 29; *Audebert, Hist. Nat. des Singes, &c.*, Fam. I, Sect. II, fig. 1.

*Pithecus* lar, Latr., *Hist. Nat. de Buffon* (Sonnini ed.), 1809, t. xxxvi, p. 276.

*Pithecus varius*, Latr., *Hist. Nat. de Buffon* (Sonnini ed.), t. xxxvi, 1809, p. 276.

- Pithecus variegatus*, Geoff. *St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 88.
- Hylobates* lar, Illiger, *Abhand. der Akad. der Wiss. Berlin*, 1815, p. 88; Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 5; Anderson, *Anat. and Zool. Resch. &c.*, 1878, p. 5.
- Hylobates variegatus*, Kuhl, *Beitr. zur Zool.* 1820, p. 5.
- Simia albigimana*, Vigors & Horsfield, *Zool. Journ.*, no. 13, 1828, vol. iv, p. 107.
- Simia variegatus*, Fischer, *Syn. Mamm.* 1829, p. 11.
- Hylobates albimanus*, Is. Geoff. *St.-Hil.*, *Zool. du Voyage de Bélanger*, 1834, p. 29.
- Hylobates leuciscus*, Cantor, *Ann. & Mag. Nat. Hist.* vol. xvii, 1846, p. 338.
- Hylobates entelloides*, Is. Geoff. *St.-Hil.*, *Compt. Rend.* t. xv, 1842, p. 717.

*Hab.* Arakan, Lower Pegu, Tenasserim, and Malayan Peninsula.

7a. A stuffed adult female; brown, but paler on the lower half of the back. In Skin Collection. No history.

b. The skin of an adult: brown, but passing into greyish between the shoulders and along the back; darkest on the head.

c. A stuffed adult male: brown, but much variegated on the back and on the arms with an intermixture of yellowish. No history.

d. A stuffed adult female: brown, becoming pale yellowish-brown on the back and on the extremities, the legs being but little paler than the normally coloured feet. No history.

e. A stuffed adult female: pale yellow. Malacca, 1846.

f. A stuffed young female: rich yellow.

g. A stuffed very young female: pale yellow.

h. A stuffed adult female, black, with the usual distinctive marks. Presented by A. Grote, Esq., 26th June 1864.

i. A stuffed young female: brown, pale yellowish on back of the thighs, and yellowish on the throat, chest, and middle line of abdomen. Purchased, 20th September 1866.

j. A stuffed adolescent male: black, with the usual markings. Tenasserim. Presented by the Countess Mayo, 14th February 1870.

k. A stuffed adult male: brown, darkest on the head, passing into light yellowish-brown on the lumbar region. Presented by W. Rutledge, Esq., 14th July 1871.

l. A stuffed young animal: top of the head black, paler on the occiput and between the shoulders, where the colour is greyish. On the lumbar region, hips, and under surface of thighs the colour is yellowish. Hands yellowish brown, feet yellow, and the area around the nude, black face white.



*m.* A stuffed young female: greyish brown, dark brown on the vertex; back greyish, passing into yellow on the lumbar region, and on the back of the thighs. Presented by W. Rutledge, Esq., 29th September 1871.

*n.* The skin of an adolescent: pale brownish yellow, the hands and feet somewhat paler; the eyebrows blackish, and the area around the face white. No history.

*o.* The skin of a young male: black, with some grey patches on the back, and pale on the sacral region: area around callosities and the back of the thighs rusty yellow; mesial line of chest and abdomen greyish yellow. Presented by W. Rutledge, Esq., 2nd March 1876.

*p.* The skin, skull, and bones of the trunk of a young male. Presented by the Zoological Gardens, Calcutta, 6th May 1877.

*q.* The skin, skull, and bones of the trunk of a young male. Presented by W. Rutledge, Esq., 19th August 1878.

*r.* The skin, skull, and bones of the trunk of a young female resembling *l* and *m*. Presented by W. Rutledge, Esq., 13th February 1877.

*s.* The skin of an adult, uniform pale, sandy yellow. Mooleyit Range, Tenasserim. Collected by Mr. Ossian Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*t.* The skin of an adult female like the last, and from the same locality. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*u.* A nearly mature male fœtus in alcohol. The head is especially well clad with hair, but the back of the loins and of the brachium are covered with numerous hairs directed downwards, but all the other parts are nearly nude. The teats are especially well developed. This is the fœtus of *t*. Mooleyit Range, Tenasserim. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

*v.* The mounted skeleton of an adult male. Tenasserim. Presented by W. Theobald, Esq., 1856.

*w.* The skull of a dark-coloured young animal. Nasal processes of frontal downwardly prolonged and broad. No history.

*x.* The skull of a pale adolescent: nasal processes of frontal short and narrow. No history.

*y.* An imperfect skull of a pale-brown adult. Nasal processes of frontal moderately downwardly prolonged and broad. No history.

*z.* The skull of a young yellow individual. No. 8E of Blyth's Catalogue.

8. *Hylobates agilis*.

- The Ounko, *F. Cuv., Hist. Nat. des Mammif.* Juin 1824, livr<sup>re</sup> xlii & xliii.  
*Hylobates agilis*, *F. Cuv., Hist. Nat. des Mammif.* Sept. 1821, livr<sup>re</sup> xxxii & xxxiii; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 5; *Anderson, Anat. & Zool. Resch.* 1878, p. 9.  
*Simia lar, Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 242.  
*Pithecus agilis, Desmarest, Mamm.*, 1820, p. 532.  
*Hylobates rafflesii, Is. Geoff. St.-Hil., Cat. Méthod. des Mammif.* 1851, p. 8.  
*Hylobates variegatus, Temminck, Monogr. de Mamm.* t. i., 1827, p. xiii.  
*Hylobates rafflei, Geoff. St.-Hil., Cours de l'Hist. Nat. des Mammif.* 7<sup>me</sup> leçon 1829, p. 34.  
*Hylobates unko, Temm. (partim), Sp. des Mammif.* 1840, p. 53.  
*Hylobates concolor, Müller, Verhandl. over de Zool. Ind. Archipel,* 1841, p. 48.  
*Hylobates mülleri, Martin, Nat. Hist. Quadr.* 1841, p. 444; *Anderson, Anat. & Zool. Resch.*, 1878, p. 8.  
*Hylobates funereus, Is. Geoff. St.-Hil., Compt. Rend.* t. xxxi, Dec. 1850, p. 874.  
*Hylobates pileatus, Gray, Proc. Zool. Soc. Lond.*, 1861, p. 136, pl. xxi; *Anderson, Anat. & Zool. Resch. &c.*, 1878, p. 6.

*Hab.* Sumatra, Siam, Cochin China, Borneo, and Sulu Islands.

A careful reconsideration of the various gibbons to which the terms above given have been applied leads me to regard them all as local races and varieties of one and the same species.

*8a.* The skin of a young male: brown, paler on the lumbar region, and on the outside of the hind limbs; hands and feet black; chest pale yellowish-brown; supercilium white; no white on the whiskers. Presented by W. Rutledge, Esq., 6th September 1869.

*b.* A stuffed young female: brown, passing into yellowish on the lumbar region, and to pale brown on the outside of the thighs; top of the head brown, parietal and occipital regions pale greyish-brown; supercilium and whiskers white; chest and inside of limbs black; hands and feet blackish brown. Presented by W. Rutledge, Esq., 16th January 1870.

*c.* A stuffed young male: the same as the preceding. Presented by W. Rutledge, Esq., 8th August 1871.

*d.* A stuffed young male: same as *b.* Presented by W. Rutledge, Esq., 27th August 1871.

*e.* A stuffed young male and its skull: the same as *b.* Presented by W. Rutledge, Esq., 13th July 1875.



*f.* A young female in alcohol. Presented by W. Rutledge, Esq., 28th July 1877.

*g.* The skin, skull, and bones of the trunk of an adult female: greyish brown on the back, passing into yellowish brown on the lumbar region, and on the back and the sides of the thighs; into darker fuliginous brown on the shoulders, sides, and outsides of the limbs. Top of the head dark brown; supercilium greyish; whiskers darker grey; throat, chest, and anterior half of front limbs black; inside of fore and hind limbs darker than the outsides; mesial portion of ventral aspect white. Presented by W. Rutledge, Esq., 8th May 1873.

*h.* The skin and skeleton of a young male: general colour ashy, darkest on the vertex, shoulders, and across the chest, and on the hands and feet; fading to pale grey on the lower portion of the back and on the hind limbs. Presented by W. Rutledge, Esq., 16th January 1877.

*i.* The skin, skull, and bones of the trunk of an adult female: supercilium grey; forehead and mesial line of crown black-brown; temporal and supra-occipital regions yellowish grey. Sides of the face and neck, throat, chest, shoulders, upper half of the fore limbs, under surface and inside of thighs and fore limbs, black; a narrow dark-brown line from the sides of the neck round the nape; back light yellowish-grey, passing on the sides into brown; limbs greyish brown; hands black; feet less so. Purchased, 24th December 1878.

*j.* The skin, skull, and bones of trunk of an adult female: grey from the occiput downwards along the back, becoming paler on the hinder quarters, with a distinct yellowish tint. The crown, also the sides of the head and neck, the throat, breast, shoulders, inside of brachium and posterior border of antibrachium, and the whole of the under parts and inside of the thighs, black. Supercilium greyish. The outside of the forearms brownish grey, also the hands. The outsides of the thighs greyish, like the back; the lower portion of the hind limb grey and blackish; the feet greyish. Presented by W. Rutledge, Esq., 14th July 1877.

*k.* The skin, skull, and bones of the trunk of a young female, like the previous specimen, but the grey of the back paler and somewhat yellow, and not extending upwards beyond the shoulders, above which the colour is brownish ashy, darkening into fuliginous blackish brown on the crown; hands and feet black, or nearly so. Purchased, 25th December 1878.

*l.* The skull of a young male resembling *b.* Presented by Babu R. R. Shaw, 4th March 1867.

9. *Hylobates leuciscus*.

The Long-armed Ape, *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, pl. xxxviii, p. 184.

The Long-armed Ape (var.  $\beta$ ), *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, p. 184.

Le Moloch, *Audebert, Hist. Nat. des Singes*, 1<sup>re</sup> fam., sec. ii, fig. ii.

The Long-armed Ape (white var.), *Shaw, Gen. Zool.* vol. i, pt. 1. 1840, p. 12, pl. vi.

Le Gibbon cendré, *Latr., Hist. Nat. de Buffon* (Sonnini ed.), t. xxxv (1809), p. 207, pl. x.

*Simia leucisca*, *Schreber, Säugeth. tab.* iiiB, 1775.

*Pithecus leuciscus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 89.

*Hylobates leuciscus*, *Kuhl, Beitr. zur Zool.* 1820, p. 6; *Anderson, Anat. & Zool. Resch.* 1878, p. 7.

*Hab.* Java.

9a. A stuffed specimen in bad condition; yellow; darkest on the top of the head and the outside of the brachium; palest on the nape and down the back. No. 6 of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1848.

b. Another specimen, like the preceding, but younger. No. 6 of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1848.

c. Another, nearly the same as the two preceding specimens, but tending to brownish grey on the top of the head and outside of the arms, and on the shoulders. No. 6 of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1848.

d. A stuffed adolescent female and its skull: Nos. 7 A and B of Blyth's Catalogue: yellowish grey; dark brown on the vertex, on the inside of the thighs, and along a line from the groin to the axilla. Pale yellowish-white on the lower half of the back, and on the hips and back of thighs. Fingers and toes dusky. The area of the fontanelle in the skull is ossified as a distinct bone intercalated between the anterior portion of the parietal and posterior half of the frontal; last molar not through. Purchased, 1834.

e. A stuffed young female: pale yellow; fuliginous on the top of the head, nape, shoulders, and upper half of the back, and on the outside of the brachium; inside of thighs, outside of antibrachium tinged with fuliginous; hands concolorous with antibrachium, and the feet yellow, like the legs; area around the face yellow; chest and belly yellowish, but the former tinged with fuliginous. Purchased, 18th July 1869.



*f.* A stuffed adolescent female: almost uniform greyish brown, darkest on the forehead and brachium; palest on the side of the face and on the supercilium. Presented by Wm. Rutledge, Esq., 4th September 1870.

*g.* A stuffed young female, and the bones of the trunk: nearly the same as the preceding; the viscera in alcohol. Presented by Wm. Rutledge, Esq., 2nd July 1872.

*h.* A stuffed young female, and the bones of the trunk: slightly darker than the last two; fuliginous yellow on the lumbar region, hips, upper half of the inside of the thighs, chest, and belly, the chin, the sides of the face, and the supercilium. Presented by Wm. Rutledge, Esq., 26th June 1873.

*i.* The skin of a young female, its skull (milk dentition) and the bones of the trunk: resembling the preceding specimen. Second and third digits of the right foot partially united at their base. Presented by Wm. Rutledge, Esq., 10th April 1876.

*j.* The skin of a young male, the skull and bones of the trunk: ashy grey on the upper parts, darkest on the crown, the forehead being greyish white; the throat, neck, chest, mesial line of the belly, and the front and outside of the thighs yellowish grey; the fingers and the distal ends of the toes dark brown. Presented by Wm. Rutledge, Esq., 7th July 1877.

*k.* The skin of an adolescent female, its skull and the bones of the trunk: like the preceding specimen, but somewhat paler; no yellowish grey on the throat, no brown on the fingers and toes; yellowish around the callosities and on the back of the thighs. Presented by the Zoological Gardens, Calcutta, 21st July 1877.

*l.* The skin of a young female, its skull and the bones of the trunk: like the preceding individual, but somewhat darker. Presented by Wm. Rutledge, Esq., 10th December 1878.

*m.* The skin and skull of a young male. Presented by Wm. Rutledge, Esq., 3rd December 1879.

*n.* The skin and skull of a young female resembling *i.* Presented by Wm. Rutledge, Esq., 2nd March 1880.

#### 10. *Hylobates leucogenys*.

L'Onke, *Tabraca, Hist. Civile et Nat. de Siam*, t. ii, 1771, p. 308.

*Hylobates leucogenys*, *Ogilby, Proc. Zool. Soc.*, 1840, p. 20; *Anderson, Anat. & Zool. Resch. &c.*, 1878, p. 6.

*Hab.* Siam.

10a. The skin, the skull, and the bones of the trunk of a

young female: wholly black, with the exception of a feebly whitish supercilium, and a greyish white ruff on the sides of the face and behind the chin. The interocular nasal portion of the skull is relatively narrower than in *H. agilis*. Presented by the Zoological Gardens, Calcutta, 4th December 1878.

*b.* The skin and skull of an adolescent female: wholly black, with a brown tinge on the body; whiskers and eye-brows grey. In both of these specimens the second and third digits of the feet are united at the base. Presented by Wm. Rutledge, Esq., 13th June 1874.

### III.—FAMILY CERCOPITHECIDÆ.

#### I.—SUB-FAMILY SEMNOPIITHECINÆ.

GENUS SEMNOPIITHECUS, F. Cuv., 1821.

##### 11. *Semnopithecus entellus*.

*L'entelle*, *Audebert*, *Hist. Nat. des Singes*, 1797, fam. iv, sec. ii, fig. 2.

*Simia entellus*, *Dufresne*, *Bull. Soc. Philom.* t. i, 1797, p. 49.

*Cercopithecus entellus*, *Latr.*, *Hist. Nat. de Buffon*, t. xxxvi (Sonnini ed.), 1809, p. 283.

*Semnopithecus entellus*, *Desmoulins*, *Dict. Class. d'Hist. Nat.* t. vii (1825), p. 568; *Anderson*, *Anat. & Zool. Resch.*, 1878, p. 15.

*Presbytes entellus*, *Gray*, *Hand-list*, *Brit. Mus.* 1843, p. 4; *Blyth*, *Cat. Mamm. Mus. As. Soc. Bengal*, 1863, p. 11; *Jerdon*, *Mamm. Ind.* 1867, p. 4.

*Presbytes anchises*, *Elliot*, *Blyth*, *Journ. As. Soc.* vol. xiii, 1844, pp. 470, 476.

*Hab.* India.

11a. A stuffed adult male, No. 27A of Blyth's Catalogue: pale yellow; pale brownish on the outside of the limbs, and black on the hands and feet. Presented by Edward Blyth, Esq., 1842.

*b.* A stuffed adult female, No. 27B of Blyth's Catalogue: brownish on the middle of the back from the nape to the tail, and dark brown on the outside of the limbs; hands and feet black. Presented by Edward Blyth, Esq., 1842.

*c.* A stuffed adolescent female, No. 27C of Blyth's Catalogue: like the preceding specimen, but more brightly coloured



on the head, and golden yellow or rusty fulvous on the flanks and under surface, thus approaching *S. pileatus*. Jangipur. Presented by J. W. Laidlay, Esq., 1848.

*d.* A stuffed young male, No. 27D of Blyth's Catalogue: pale yellow; brownish on the middle of the lower two-thirds of the back, and slightly so on the outside of the limbs; hands and feet black. Presented by Edward Blyth, Esq., 1842.

*e.* A stuffed young female, No. 27E of Blyth's Catalogue: pale yellow; no trace of brown on the back; hands and feet brownish black. Presented by Edward Blyth, Esq., 1842.

*f.* A stuffed young male: pale yellow, slightly suffused with fuliginous on the lumbar and sacral regions, and on the middle of the back; limbs pale yellow; hands and feet brownish. Purchased, February 1866.

*g.* A stuffed adult (gravid) female: the bones of the trunk, and the fetus in alcohol. Yellow on the head, flanks, belly, and front of fore-arms and back of thighs; rather dark-greyish brown on the back, with a yellow tinge, but the former colour deepening towards the tail. Purchased, 8th August 1869.

*h.* A stuffed young male: pale yellow, suffused with pale fuliginous on the middle of the back; yellow, slightly rusty on the back of the thighs; reddish brown on the tail and similarly coloured around the ankles, on the tarsal and on the carpal regions; the rest of the upper surface of the hands and feet black. Purchased, 8th March 1870.

*i.* The skin of a pale yellow adolescent male: much the same as the last, but the rufous less intense. Asiatic Society's specimen, but no history.

*j.* The skin, skull, and bones of the trunk of a young female: pale yellow, fuliginous on the latter half of the back and on the outside of the limbs; tail brownish yellow; hands and feet black. Presented by Wm. Rutledge, Esq., 9th February 1874.

*k.* The flat skin and skeleton of an animal the same as the preceding female *j.* Purchased, 22nd June 1872.

*l.* The flat skin and skeleton of an adult male: rather bright yellow and golden on the ventral region; lower half of back and outside of limbs dusky fuliginous; hands and feet black. Purchased, 6th August 1873.

*m.* The flat skin and skeleton of a younger and more deeply coloured male than the preceding. Presented by Raja Rajendra Mullick, Bahadur, 7th December 1873.

*n.* The flat skin and skeleton of a young female: dusky on

the lower half of the back and on the outside of the limbs. Presented by B. Collins, Esq., 13th September 1874.

*o.* The skin, skull, and bones of the trunk of an adolescent male. Purchased, 6th October 1877.

*p.* The skeleton of a male. Presented by Wm. Rutledge, Esq., 18th June 1880.

*q.* The articulated skeleton of an adult male. Probably No. 27F of Blyth's Catalogue.

*r.* The disarticulated skeleton of an adult female. Royal Botanical Gardens, Howrah. Presented by Dr. J. Anderson, 2nd September 1865.

*s.* The disarticulated skeleton of an adult female. Royal Botanical Gardens, Howrah. Purchased, 30th December 1868.

*t.* The disarticulated skeleton of a young female. Presented by Dr. J. Anderson, 24th June 1869.

*u to w.* Three skulls of adult males, Nos. 27G, H, and I of Blyth's Catalogue.

*x.* The skull of an adolescent male. Presented by G. Sceva, Esq., 10th October 1868.

*y.* The disarticulated skeleton of an adult. Botanical Gardens, Calcutta. Presented by Dr. J. Anderson, 1867.

*z.* The skeleton of a very large adult male. Allahabad. Presented by John Cockburn, Esq., 17th January 1879.

#### VAR. *a.*

##### *Semnopithecus schistaceus.*

The langâr, *Hodgson, Journ. As. Soc.* 1832, vol. i, p. 339.

The long-tailed monkey, *Pemberton, Journ. As. Soc. Beng.* vol. viii, 1839, p. 272.

The Masuri langar, *Hutton, Journ. As. Soc. Beng.* vol. xiii, 1844, p. 471.

*Semnopithecus entellus*, *Hodgson, Proc. Zool. Soc.* 1834, p. 95.

*Semnopithecus schistaceus*, *Hodgson, Journ. As. Soc. Beng.* vol. ix, 1840, p. 1212; *Anderson, Anat. & Zool. Resch.* 1878, p. 16.

*Semnopithecus nepalensis*, *Hodgson, Journ. As. Soc. Beng.* vol. ix, 1840, p. 1212.

*Presbytis schistaceus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 11; *Jerdon, Mamm. Ind.* 1867, p. 6.

*Hab.* Himalaya, Bhutan, and to the West of Simla, at elevations from 4,000 to 13,000 feet.

*11aa.* A stuffed adult male and skull, Nos. 28A and B of Blyth's Catalogue: head, neck, chest, inside of limbs, and under parts yellow; general colour of the trunk brownish or fuliginous yellow, and darkest on the shoulders, outside of



fore limbs, and thighs; hands nearly black; feet dusky; hair long and profuse on the body, and on the feet; tail concolorous with the body, paling towards the tip. Masuri. Presented by Captain T. Hutton, 1848.

*bb.* The skin of an adult male: general colour of the upper parts, except the head, dark slaty, darkest on the outside of the fore limbs, passing almost into blackish on the fingers; dark on the thighs, but paling towards the ankle and passing almost into blackish on the toes. Tail concolorous with the back, becoming darker towards the tip. Head pale yellow, nearly white; chin, throat, chest and under parts, and inside of limbs, yellowish. Fur wavy, profuse, and long. Sikkim, Himalaya. Presented by L. Mandelli, Esq., November 1875.

*cc.* The skin of another adult, the same as the last. Sikkim. Presented by L. Mandelli, Esq., November 1875.

*dd.* The skin of an adolescent individual: head more yellow than preceding specimens, and the feet not quite so dark. Sikkim. Presented by L. Mandelli, Esq., November 1875.

## 12. *Semnopithecus priamus*.

*Semnopithecus priam*, *Elliot, Blyth, Journ. As. Soc. Beng.* vol. xiii (1844), pp. 470, 476.

*Semnopithecus pallipes*, *Blyth, Ann. & Mag. Nat. Hist.* 1844, p. 312.

*Presbytis priamus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 732, pl. liv, fig. 1; *Cat. Mamm. As. Soc. Mus.* 1863, p. 12; *Jerdon, Mamm. Ind.* 1867, p. 7.

*Presbytis thersites*, *Elliot, Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 1271, pl. liv, fig. 3.

*Semnopithecus albipes*, *Gray, Cat. Monkeys and Lemurs, B. M.*, 1870, p. 15.

*Semnopithecus priamus*, *Anderson, Anat. & Zool. Resch., &c.*, 1878, p. 19.

*Hab.* The Eastern Ghâts of India, and Northern Ceylon.

*12a.* A stuffed adult female, and skull: No. 30A of Blyth's Catalogue. Pale fuliginous on the upper parts of the trunk and on the head, but palest on the head and darkening towards the rump; almost yellow on the nape. Outside of the fore limbs and thighs pale ashy brown; yellow on the sides of the head, throat, chest and inside of the limbs, lower half of the thigh, and hands and feet. Coromandel Coast. Presented by Sir Walter Elliot, 1847.

*b.* A stuffed adult male, and skull, No. 30B of Blyth's Catalogue. Much darker than the preceding specimen:



fuliginous brown on the upper parts, except the sides and part of the head and nape, which are yellowish; vertex pale fuliginous brown, the same colour as the back, also the outside of the limbs and the tail. Under parts, inside of the limbs, and back of thighs yellowish; upper surface of hands showing a distinct tendency to dusky. St. Pedro, Ceylon. Presented by E. L. Layard, Esq., 1848.

*c.* A stuffed adult and its skull, No. 30C of Blyth's Catalogue. Larger than the preceding, but with the head and nape darker; limbs fuliginous, the hands and feet concolorous with them. "The original of *P. thersites*, Elliot, from Ceylon."—*Blyth*. Ceylon. Presented by Sir Walter Elliot, 1845.

*d.* A stuffed adult, No. 30D of Blyth's Catalogue: hands paler than No. 12*b*, and feet yellowish. Ceylon. Presented by E. L. Layard, Esq., 1849.

Blyth described *S. priamus* as having a compressed, high, vertical crest, but one of the foregoing specimens (*c*) shows no sign of a true crest, and, as Blyth stated that the specimen which was under his observation when alive had no crest, I examined the types of the species *a* and *b*, and found that in *a* the skin of the vertex had been cut open and cotton wool introduced between the skull and the skin, and that where the cotton wool was there the crest existed. In *b* the short compressed crest occurred exactly over the point of a wire that perforated the skull and pressed against the skin.

*e.* The skull of an adult male, No. 30E of Blyth's Catalogue. Trincomali. Presented by Dr. E. F. Kelaart.

*f.* The skull of an adult male, No. 30F of Blyth's Catalogue. Trincomali. Presented by Dr. E. F. Kelaart.

*g.* The skull of an adolescent male, No. 30G of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq.

*h.* The skull of an adult female, No. 30H of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq.

The skull of *S. priamus*, in its adult condition, is considerably smaller than that of *S. entellus*; the vertical depth of its face is relatively less than in that species, while, on the other hand, it is proportionally broader across the orbits. Its fronto-nasal depth also is less than in *S. entellus*, the nasals being short and broad, and the nasal opening considerably shorter than in that species; a line drawn through the centre of the face, from the alveolar border of the premaxillaries to the supraorbital ridge, does not touch the distal end of the nasals, these bones being rather flattened and broad, and slightly

concave. These differences in the details of the configuration must confer on *S. priamus* a very different visage from that of *S. entellus*. There is not much difference in the teeth of the two forms, but in *S. priamus* they are relatively larger than in *S. entellus*, except the canines, which are smaller.

### 13. *Semnopithecus hypoleucus*.

*Semnopithecus hypoleucus*, *Blyth, Journ. As. Soc. Beng.* vol. x, 1841, p. 839; vol. xvi, 1847, p. 733, pl. xxvi fig. 1; *Anderson, Anat. & Zool. Resch.* 1878, p. 20.

*Semnopithecus johnii*, *Anderson, Anat. & Zool. Resch.* 1878, p. 20 var.

*Semnopithecus dussumieri*, *Is. Geof. St.-Hil., Comptes Rendus*, 1842, t. xv, p. 719.

*Presbytis johnii*, *Blyth, Journ. As. Soc. Beng.* vol. xxviii, 1859, p. 283; *Cat. Mamm. As. Soc. Mus.* 1863, p. 12; *Jerdon, Mamm. Ind.* 1867, p. 7.

*Hab.* Forests of the Malabar Coast.

13a. A stuffed adult male and skull, No. 29A of Blyth's Catalogue. Head, except the eyebrows and skin of face, yellow; throat, under parts, inside of brachium and thighs yellow, especially bright on the chest and belly. Brown from the shoulders to the root of the tail, darkest on the middle of the back, paler on the sides and the posterior half, and the outside of the thighs. Antibrachium, front of thighs, and lower half of legs black, light brownish on the front of the tibia. Hands and feet black, concolorous with the limbs. Tail black, brownish towards its tip. Hair of head semi-erect and backwardly directed; a few black hairs before the ears: nails black. The skull of this species has the general features of the skull of *S. priamus*, but it is smaller and characterised by much less prominent supraorbital ridges and by considerably less interorbital breadth, with narrow rather compressed nasals, in this respect conforming to the female of *S. priamus*. The skull is entire, with the exception of the occipital and basi-occipital portion, and its length from the premaxillaries to the lambdoidal ridge is 4".26, the palate measuring 1".73. The fronto-malar and greatest zygomatic breadth are respectively 2".55 and 3".30. These measurements show that this species is the smallest of the Indian *Semnopithecini*. Travancore. Presented by Dr. W. Coles, 1841.

### 14. *Semnopithecus pileatus*.

The Assam entellus monkey, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 732.



*Semnopithecus pileatus*, *Blyth, Journ. As. Soc. Beng.* vol. xii, 1843, p. 174; *Anderson, Anat. & Zool. Resch.* 1878, p. 13.

*Presbytis pileatus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 735, pl. xxvi fig. 3; *Cat. Mamm. Asiatic Soc. Mus.* 1863, p. 12.

*Semnopithecus chrysogaster*, *Licht. Peters, Proc. Zool. Soc.* 1866, p. 429, footnote.

*Semnopithecus potenziiani*, *Pr. Bonap., Comptes Rendus*, t. xliii, 1856, p. 412.

*Hab.* Northern Assam, Tipperah, Eastern Bengal Hill Tracts, Arakan, Upper Burma, and Tenasserim.

14a. A stuffed adult female, No. 31A of Blyth's Catalogue. Sides of head and under parts orange yellowish; hands and feet black. Chittagong Hills. Presented by the Rev. J. Barbe, 1844.

b. A stuffed adult female, No. 31B of Blyth's Catalogue. Considerably paler than the preceding specimen, especially on the posterior half of the trunk and the limbs, which are almost yellow. Carpal portion of hand blackish, fingers yellowish; feet similarly coloured. Tail concolorous with the back, becoming darker towards the tip. Chittagong Hills. Presented by the Rev. J. Barbe, 1844.

c. A stuffed adolescent male, No. 31C of Blyth's Catalogue. The orange yellow especially bright on the front of the shoulder, side of the neck, and head. Outside of lower half of hind limbs rich yellow, hands and feet dusky. Tipperah Hills. Presented by F. Skipwith, Esq., 1846.

d. A stuffed female, No. 31D of Blyth's Catalogue. Light coloured; under parts pale yellow; no trace of orange. General colour of upper parts and outside of limbs greyish or fuliginous, darkest on the front of the head and on the shoulders. Presented by the Barrackpore Menagerie, 1843.

e. A stuffed young female, the same as the last specimen, but the fingers yellow and the carpal region dusky. Presented by Wm. Rutledge, Esq., 20th December 1870.

f. A stuffed adult male, its skull, and the bones of the trunk. Sides of head and under parts pale yellow, as in the preceding specimen. Upper parts greyish, passing into blackish on the dorsum of the hand; fingers yellow; feet and lower half of tibial portion of leg and the whole of the dorsum of the feet yellow, except a transverse blackish band across the base of the toes. Presented by Raja Rajendra Mullick, Bahadur, 19th March 1873. This is a Menagerie specimen.

g. The skin of a young animal: rich yellow above; supraorbital hairs black; forehead yellow; vertex dusky grey;

occiput yellow: a fuliginous band across the nape: back of neck rufous or orange; back, outside of fore limbs, and dorsum of first half of the tail, pale greyish with an orange tinge. Lower half of outside of limbs, hands, and feet rich yellow; under parts yellow.

*h.* Skin of an adult male: upper surface of head dark brown, passing into greyish on the occiput; the dark-coloured cap rapidly contracts on the nape into a narrow area on the back of the neck; dark greyish-brown over the shoulders and backwards along one-half of the back, passing into grey on the lumbar region, first half of the tail, and outside of the fore limbs and thighs; terminal half of tail black and tufted; hands dark greyish-brown; base of the toes and their first halves brownish; sides of the head and ventral aspect of the body bright rusty yellow. The inside of the fore limbs and lower half of the legs pale yellow. The hair of the crown cap longish and directed backwards; a tuft of long yellow hair below and behind the ears is directed forwards, as in *S. cephalopterus*. Khási Hills. Presented by Lieut.-Colonel H. H. Godwin Austen, 11th May 1870.

*i.* The skin of an adolescent female: darkest on the outside of the fore limbs; the hands and feet dark brown, with the exception of the great toe, which is yellow. The greyish of the posterior half of the back and the first half of the tail is suffused with yellow. The yellow of the sides of the head and under parts is almost orange-yellow. Sibságar, Upper Assam. Presented by S. E. Peal, Esq., July 1870.

*j.* The skin and skull of an adult female. The yellow of the sides of the head and under parts deep orange; outside of the fore limbs suffused with pale orange; lower half of hind limbs wholly orange-yellow, also the hinder portion of the thighs. Fingers yellow; dorsum of hand more or less blackish; dorsum of feet yellow, darkest across the metacarpals. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*k.* The skin of an adult female. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*l.* The skin of an adult male resembling *k.* Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*m.* The skin and skull of an adult male, like *k.* but darker. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*n.* The skin of a young male, and its skull. It resembles *l.* but is not so orange below. Hill Tracts, Arakan. Presented by the Zoological Gardens, 23rd January 1878.



*o.* The skull of an adult male. Assam. Museum Collector, 1874.

*p.* The skull of a female, less the lower jaw. No history.

*q.* An adult female skeleton. Arakan Hill Tracts. Presented by the Zoological Gardens, 16th March 1878.

### 15. *Semnopithecus cephalopterus*.

The lion-tailed monkey ( $\beta$ ), *Pennant, Syn. Quad.* 1771, p. 109, pl. 108 fig. 2.

La guenon à face pourpre, *Buffon, Hist. Nat. Suppl.* t. vii, 1789, p. 80, pl. xxi.

The purple-faced monkey, *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, p. 199, pl. xliii.

*Cercopithecus senex*, *Erxleben, Systema Regni Animalis*, 1777, p. 24.

*Cercopithecus kephalopterus*, *Zimm., Geograph. Gesch.* Bd. ii, 1780, p. 185.

*Simia veter*, *Shaw, Gen. Zool.* vol. i, pt. i (1800), p. 36.

*Cercopithecus leucopymnus*, *Otto, Nova Acta, Acad. Nat. Cur.* Bd. xii, Pt. ii, 1825, p. 505.

*Semnopithecus fulvogriseus*, *Desmoulins, Dict. Class. d'Hist. Nat.* t. vii, 1825, p. 570.

*Semnopithecus nestor*, *Bennet, Proc. Zool. Soc.* 1833, p. 67.

*Presbytes cephalopterus*, *Gray, Hand-list Mamm.* 1843, p. 4; *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, pp. 734, 1271; *Cat. Mamm. As. Soc. Mus.* 1862, p. 13.

*Presbytis ursinus*, *Blyth, Journ. As. Soc. Beng.* vol. xx, 1851, p. 155; *Cat. Mamm. As. Soc. Mus.* 1863, p. 13.

*Presbytes albinus*, *Kelaart, Prodrömus Faunæ Zeylanicæ*, 1852, p. 7.

*Semnopithecus kelaartii*, *Schlegel, Mus. d'Hist. Nat. des Pays-Bas (Simiæ)*, 1876, p. 52.

*Semnopithecus cephalopterus et ursinus*, *Anderson, Anat. & Zool. Reich.* 1878, pp. 22, 24.

*Hab.* Ceylon and its highlands.

15*a.* A stuffed adolescent female, No. 34A of Blyth's Catalogue. Hairs of head longish and brown: eyebrows black; beard and whiskers white; body black, with the exception of the sacral region, back and outside of the thighs, which are greyish, this colour most pronounced on the sacral region; tail, for three-quarters of its extent greyish brown. Inside of thighs anterior to the callosities, and the last quarter of tail pale yellowish, almost white. Purchased, 1845.

*b.* A stuffed young male, the same as the preceding, but the black hairs of the trunk tinged with greyish, and the yellowish at the base of the thighs absent. Purchased, 10th December 1866.



c. A stuffed adolescent female: tinged with greyish; the whiskers, below the ears, brown throughout the greater part of their extent, but white at the base. The yellow, anterior to the callosities, well developed. Presented by Wm. Rutledge, Esq., March 1868.

d. A stuffed very young male: brownish black; no yellow area before the callosities. Presented by Wm. Rutledge, Esq., 1870.

e. A stuffed adult male, its skull, and the bones of its trunk: brown, with a large grey area in the sacral region and base of the thighs; hair on head brown and longish. Presented by the Barrackpore Menagerie, 1872.

f. The skeleton of a female, No. 34E of Blyth's Catalogue. No history.

g. The skull of a female, No. 34F of Blyth's Catalogue. No history.

h. The imperfect skeleton of a young female. Presented by Wm. Rutledge, Esq., 18th February 1871.

i. The skin, skull, and bones of the trunk of a young female. Presented by Wm. Rutledge, Esq., 7th February 1877.

j. The skeleton of an adult female. Presented by Wm. Rutledge, Esq., 7th November 1878.

k. The skull of a young male. Purchased, 8th July 1879.

l. A young female, in alcohol. Presented by Wm. Rutledge, Esq., 26th July 1879.

m. A stuffed adolescent female, and its skull, No. 34B of Blyth's Catalogue. Uniformly pale brown, except on the head, which is still paler yellowish brown; sacral region pale grey; hands and feet dark brown; a pale yellow area at the base of the thighs internally and before the callosities. Ceylon. Presented by R. Templeton, Esq., 1848.

n. The skin and skull of an adolescent male, No. 34C of Blyth's Catalogue. Rufous brown, but otherwise resembling the preceding specimen, only the inner aspects of the thighs appear to have been dark brown, with no yellow area at their base. Ceylon. Presented by T. C. Jerdon, Esq., 1843.

o. A stuffed adolescent female: brown, passing into grey on the sacral region; inside of the thighs darker than the outside; a pale yellow area at their base; head pale brown; beard and whiskers white. Purchased, 1st November 1866.

*Hill variety (S. ursinus, Blyth).*

p. A stuffed adult male and skull, No. 33A of Blyth's Catalogue. Dark brown, passing into black on the hands and feet,

and into slightly paler brown on the head; hardly perceptibly paler on the sacral region, but passing into greyish brown on the tail. Eyebrows long and black; beard and whiskers white; fur profuse and long, and nearly  $3\frac{1}{2}$  inches in length. Newara, Elia, Ceylon. Presented by Dr. E. F. Kelaart, 1847.

q. The skin of a young male, No. 33B of Blyth's Catalogue; paler brown than the preceding; pale yellowish-brown on the head; beard and whiskers white; sacral region and outside of thighs faintly paler brown. Newara, Elia, Ceylon. Presented by Dr. E. F. Kelaart, 1846.

r. A stuffed young female, No. 33C of Blyth's Catalogue; resembling the last specimen, but with a pale yellow area on the inside of the base of the thighs anterior to the callosities, as in true *S. cephalopterus*. Mountains of Ceylon. Presented by Dr. E. F. Kelaart, 1846.

*White variety (S. senex, Erxl.).*

s. A stuffed young female, No. 34D of Blyth's Catalogue; pale-yellowish white throughout, except on the head, which is faintly marked with brownish, and over the shoulders and the middle of the back, which are tinged with dusky. Ceylon. Presented by Dr. E. F. Kelaart, 1851.

16. *Semnopithecus johnii*.

Einiger affenarten, *C. J. John, Berlin, Ges. Nat. Freunde N. Schr.* Bd. i, 1795, pp. 211, 218.

*Cercopithecus johnii*, *Fischer, Syn. Mamm.* 1829, p. 25.

*Semnopithecus cucullatus*, *Is. Geoff. St.-Hil., Zool. Voy. de Bélanger*, 1834, p. 38, pl. I.

*Semnopithecus johnii*, *Waterhouse, Cat. Mamm. Mus. Zool. Soc. Lond.* 2nd ed., 1838, p. 5; *Anderson, Anat. & Zool. Resch.* 1878, p. 21.

*Semnopithecus jubatus*, *Wagner, Schreber, Säugeth. Suppl.* Bd. i, 1840, p. 305.

*Semnopithecus cephalopterus*, *Blyth, Journ. As. Soc.* vol. xiii, 1844, p. 469 (*partim*).

*Presbytis cucullatus*, *Blyth, Journ. As. Soc. Beng.* vol. xxviii, 1859, p. 283; *Cat. Mamm. As. Soc. Mus.* 1863, p. 14.

*Presbytis jubatus*, *Jerdon, Mamm. Ind.* 1867, p. 8.

*Hab.* Nilgiris to Travancore.

16a. A stuffed adult male, No. 35A of Blyth's Catalogue; jet black; head brown with long hair, paler on the occiput, and similarly-coloured beard and whiskers; grey on the



sacral region and back of the thighs, less so on the tail, and no yellow at the base of the thighs. Barrackpore Park Menagerie, 1844.

*b.* A stuffed adult female, No. 35B of Blyth's Catalogue; resembling the last, but with the yellow area at the base of the thighs, as in *S. cephalopterus*. Nilgiris. Presented by T. C. Jerdon, Esq., 1843.

*c.* The flat skin and articulated skeleton of a female. Purchased, 15th November 1867.

*d.* The skull of an adult male. The Rev. J. Baker.

#### 17. *Semnopithecus obscurus*.

*Semnopithecus obscurus*, *Reid, Proc. Zool. Soc.* 1837, p. 14; *Anderson, Anat. & Zool. Resch.* 1878, p. 25.

*Semnopithecus obscurus*, *Lesson, Sp. des Mammif.* 1840, p. 65.

*Presbytes obscura*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 14.

*Semnopithecus leucomystax*, *Müller and Schlegel, Verhandl.* 1839-44, p. 59.

*Semnopithecus halonifer*, *Cantor, Proc. Linn. Soc.* (1845), vol. i, 1849, p. 235.

*Hab.* Malayan Peninsula and Siam.

*17a.* A stuffed adult male, and skull, No. 37A of Blyth's Catalogue; dark brown on the sides of the body, slightly paler on the back; fore limbs dark brown, hind limbs paler greyish brown; hands and feet black; occiput with long, backwardly directed, pale brownish-yellow hairs; whiskers brown and long; beard sparse and whitish. Malayan Peninsula. Presented by the Rev. F. W. Lindstedt, 1846.

*b & c.* A stuffed adult female and skull, No. 37B of Blyth's Catalogue, and its young one: it resembles the previous specimen, but the yellow of the head is more or less continued to the root of the tail as a broad yellowish-brown band; the young male, probably No. 37D of Blyth's Catalogue, is bright yellow, and its tail is bushy towards its extremity. Presented by R. W. G. Frith, Esq., 1846.

*d.* A stuffed half-grown male, No. 37C of Blyth's Catalogue; pale brown, palest on the middle of the back; pale area of head not so yellow as in adults. Presented by Mr. W. G. Moxon, 1856.

*e.* Skin of a very young female, probably No. 37E of Blyth's Catalogue: pale brown; outside of hind limbs yellowish; tail dusky brown at base, bright yellow in the rest of its length; occipital region pale yellowish-grey. Presented by the Rev. F. W. Lindstedt.

*f.* A stuffed young male, probably No. 37F of Blyth's Catalogue: same age as preceding specimen; yellow, marked on the anterior half of the body with brownish, not obscuring the underlying yellow; the grey on the occiput showing faintly; lower halves of fore limbs and hind feet brown. Presented by the Rev. F. W. Lindstedt.

*g.* The skin of a somewhat older individual, No. 37G of Blyth's Catalogue: passing from yellow into brown; the hind quarters and tail still yellow; occipital region bright grey. Mergui. Presented by Major Berdmore, 1854.

### 18. *Semnopithecus maurus*.

The middle-sized black monkey, *Edwards' Gleanings, Nat. Hist.* 1764, part iii, p. 221, pl. 311.

La guenon nègre, *Buffon, Hist. Nat. Suppl. t. vii*, 1789, p. 83.

The Negro monkey, *Pennant, Hist. Quad.* vol. i, 3rd ed., 1793, p. 206.

*Simia maura*, *Schreber, Säugeth.* Bd. i, 1775, p. 107, pl. xxiiB.

*Cercopithecus maurus*, *Erxleben, Syst. Reg. An.* 1777, p. 41.

*Semnopithecus maurus*, *F. Cuv., Hist. Nat. des Mamm.* Nov. 1822, livr. xxxviii; *Anderson, Anat. & Zool. Resch.* 1878, p. 27.

*Simia ceylonicus*, *Desmoulins, Dict. Class. d'Hist. Nat. t. vii*, 1825, p. 572.

*Semnopithecus edwardsii*, *Fischer, Syn. Mamm.* 1829, p. 15.

*Presbytes maura*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3.

*Presbytes maurus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 735; *Cat. Mamm. As. Soc. Mus.* 1863, p. 13.

*Semnopithecus pyrrhus*, *Horsfield, Zool. Resch. Java*, 1821 (plate).

*Presbytes pyrrhus*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3; *Blyth, Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 10.

*Hab.* Malayan Peninsula, Sumatra, and Java.

18a. A stuffed adolescent male, and skull, No. 32A of Blyth's Catalogue: yellowish at the base of the tail. Purchased, 1846-9.

*b.* The skin of an adolescent male and its skull, No. 32B of Blyth's Catalogue. Purchased, 1846-49.

*c.* An adolescent female: yellow at the base of the tail and at the base of the thighs internally. Presented by Wm. Rutledge, Esq., August 1869.

*d.* The skin, skull, and bones of the trunk of an adolescent female. Sumatra. Presented by Wm. Rutledge, Esq., 9th May 1873.

*e.* The skin and skeleton of an adolescent male. Presented by Raja Rajendra Mullick, Bahadur, 5th August 1876.

*f.* The skin, skull, and bones of the trunk of a young



female: yellow at the base of the tail beneath, and before and external to the callosities. Presented by Wm. Rutledge, Esq., 18th January 1877.

g. The skin, skull, and bones of the trunk of a young male: no yellow at the tail or callosities. Presented by Wm. Rutledge, Esq., 26th January 1877.

h. The skin, skull, and bones of the trunk of a young female. Presented by Wm. Rutledge, Esq., 1st October 1880.

i. The skull of an adolescent female, No. 32C of Blyth's Catalogue. No history.

j. The skeleton of a male, No. 37H of Blyth's Catalogue. Tenasserim. Presented by Dr. Helfer, 1838.<sup>1</sup>

k. The skeleton of an adult female. Purchased, 24th November 1865.

l. A stuffed adult female: rich ferruginous; the *S. pyrrhus* of Horsfield, Java. From the collection of the India Museum, London. Presented through the Trustees of the British Museum, 13th January 1880.

#### 19. *Semnopithecus barbei*.

*Semnopithecus maurus*, Helfer, *Journ. As. Soc. Beng.* vol. xvii, 1838, p. 858.

*Presbytis barbei*, Blyth, *Journ. As. Soc. Beng.* vol. xvi, 1847, p. 734, *Cat. Mamm. As. Soc. Mus.* 1863, p. 14.

*Semnopithecus barbei*, Anderson, *Anat. & Zool. Resch.* 1878, p. 12.

*Hab.* Tipperah; Irrawadi Valley; Tenasserim.

19a. A stuffed adult male and its skull, No. 36A of Blyth's Catalogue: blackish brown, except on the front of the shoulders and fore limbs, lower part of hind legs, the back and sides of the head, and the tail, which are greyish-brown. Hands, feet, eyebrows, and whiskers black, and the under parts nearly the same; dark greyish-brown on the lighter upper parts. Tipperah Hills.<sup>2</sup> Presented by the Rev. J. Barbe, 1845.

<sup>1</sup> This skeleton was first determined by Pearson as the skeleton of a Negro monkey, *S. maurus*, *Journ. As. Soc. Bengal*, vol. vii (13), p. 669, but Blyth regarded it as probably belonging to *S. obscurus*. A comparison, however, of its skull with that of *S. obscurus* (a skull of which Blyth had not) proves it to be most nearly allied to this species.

<sup>2</sup> Blyth, in his description of this species, gives Tenasserim Province of Ye as the locality from whence he obtained his types, but in his Catalogue of Mammals (p. 14) Tipperah is given as the correct locality on the strength of information subsequently communicated by Mr. Barbe.

b. A stuffed adult female and its skull, No. 36B of Blyth's Catalogue: the same as the preceding. Presented by the Rev. J. Barbe, 1845.

c. A stuffed young male: paler than the adults. Purchased, 1866.

d. The skin of an adult male: black with a wash of grey chiefly on the shoulders and brachium. Mooleyit Range, Tenasserim. Collected by Mr. Ossian Limborg, January 1877. Presented by Dr. J. Anderson, 11th December 1880.

e. The skull of an adult male, killed in the 2nd defile of the Irrawadi. Dr. J. Anderson. Presented by the Second Expedition to Western Yunnan, 1875.

This species appears to be very closely allied to the next, and a larger series of specimens than is at my disposal will probably prove their identity.

#### 20. *Semnopithecus phayrei*.

*Semnopithecus phayrei*, *Journ. As. Soc. Beng.* vol. xvi, 1847, p. 733, pl. xxxi, fig. 3, p. 1271; *Anderson, Anat. & Zool. Resch.* 1878, p. 34.

*Presbytis phayrei*, *Blyth, Cat. Mam. As. Soc. Mus.* 1863, p. 15.

*Hab.* Arakan.

20a. A stuffed adult male, No. 38A of Blyth's Catalogue, and skull: uniform brown, slightly paler on the shoulders and passing into dark blackish-brown on the antibrachium, and hands and feet; tail concolorous with the body; white of the under parts scarcely extending on to the inside of the limbs; hair of head rather long, not radiating on the crown, directed outwards and backwards on the middle of the frontal region, and forming a vertical crest; whiskers rather long; a broad area around the eyes pure white; nose black; around lips fleshy white. The skull has the interorbital space of moderate length, the forehead rather full, but the supraorbital ridges are not strongly developed, whilst the external orbital angle of the frontal is rather prominent in adults. The greatest breadth of the orbits is from the external frontal angle obliquely downwards and outwards across the orbit, whereas in *S. barbei* and *S. obscurus* the orbits are nearly round. The ridges marking the attachments of the temporal muscles do not meet on the middle line, but are separated by about an interval of an inch. The brain-case is upwardly tilted, so that the occipital region is nearly vertical, and associated with this there is a downward slope of the facial region. Arakan. Presented by Sir Arthur P. Phayre, 1844.



b. A stuffed young male, like the preceding, No. 38C of Blyth's Catalogue. Arakan. Presented by Major J. Abbot, 1844.

c. A stuffed young female, like the preceding, No. 38D of Blyth's Catalogue. Arakan. Presented by Major J. Abbot, 1844.

d. A young male in alcohol. Akyab Hill Tracts. Presented by the Zoological Gardens, 8th July 1877.

e. A young female in alcohol. Akyab Hill Tracts. Presented by the Zoological Gardens, 9th August 1877.

## 21. *Semnopithecus holotephrus*.

*Semnopithecus holotephrus*, *Anderson, Anat. & Zool. Resch.* 1878, p. 27.

*Hab.* Unknown.

21a. A stuffed adult male, its skull and bones of the trunk: uniform dark slaty-grey, passing into black on the forearm and hands, and also on the feet; under parts and inside of front limb and thighs pale yellowish grey. Head slightly crested over the vertex, but only with a feeble tendency to lateral compression, supraorbital hairs moderately long and black; whiskers rather long, directed backwards and outwards, hiding the ears in front; face bluish black; area around the eyes and lips white.

The nasal region of the skull is rather prominent, nearly straight and moderately broad, with the orifice narrow and rather long. Supraorbital ridges are well developed, and the orbits are nearly round and of moderate size. The premaxillaries form a slightly expanded suture with the nasals. The last-mentioned bones are about half the lateral length of the premaxillaries. The palate has moderately broad margins, very slightly posteriorly convergent.

The colour of this specimen has much faded since it was first described, and it now resembles *S. barbei*, with which it may ultimately prove to be identical.

Presented by Wm. Rutledge, Esq., 29th October 1872.

## 22. *Semnopithecus cristatus*.

*Simia cristata*, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 244.

*Semnopithecus pruinosis*, *Desmarest, Mamm.* 1820, (Suppl.) p. 533.

*Semnopithecus mitratus*, *Cuv., Règ. Animal*, 1829, nouv. éd. t. i, p. 4 *partim*.

*Semnopithecus cristatus*, Müller, *Tijdschr. voor Natuur., Gesch. en Phys.* Dl. ii, 1835, pp. 316, 328; *Anderson, Anat. & Zool. Resch.* 1878, p. 29.

*Semnopithecus rutledgii*, *Anderson, Anat. & Zool. Resch.* 1878, p. 38.

*Hab.* Sumatra and Borneo.

22a. A stuffed adult male: brownish black, tinged with fuliginous on the flanks, forearm, and crest; a short crest on the vertex directed backwards, and with long black hair on the temporal region directed forwards. Sumatra. Collected by Sir Stamford Raffles, and presented by him to the India Museum, London, as an example of *S. cristatus*. Presented by the India Museum, through the Trustees of the British Museum, 13th April 1880.

b. A stuffed adolescent female and its skull: black; the hairs tipped with lustrous grey on the head and trunk, and yellowish grey on the limbs, except on the hands and feet, which are black; hair of the under parts pale and more broadly tipped yellowish grey; tail black, tipped with grey above, under surface yellowish, especially at the root; hair very short on the sides of the head, where it is so broadly tipped with grey as to be almost white; medium crest erect and compressed; front of forehead black, whiskers long, backwardly and upwardly directed, and broadly tipped with yellowish grey. Face bluish black. Type of *S. rutledgii*. Presented by Wm. Rutledge, Esq., 18th September 1871.

c. A skin of a young female, like the preceding, with its skull and the bones of its trunk; but the under surface of the tail at the root quite yellow; crest but little defined, and front of the head jet black. Presented by Wm. Rutledge, Esq., 14th December 1874.

d. An adolescent female in alcohol. Presented by Wm. Rutledge, Esq., 21st February 1879.

### 23. *Semnopithecus siamensis*.

*Semnopithecus siamensis*, Müller und Schlegel, *Verhandl.* 1844, p. 60; *Anderson, Anat. & Zool. Resch.* 1878, p. 37.

*Semnopithecus albocinereus*, Blyth, *Journ. As. Soc. Beng.* vol. xii, 1843, p. 175; *Cat. Mamm. As. Soc. Mus.* 1863, p. 15.

*Presbytes cinerea*, Gray, *Hand-list. Mam. B. M.* 1843, p. 193.

*Semnopithecus nigrinaus*, Is. Geoff. *St.-Hil., Arch. du Mus.* t. ii, 1843, p. 546.

*Semnopithecus argentatus*, Blyth, *Horsfld., Cat. Mamm. E. Ind. Co.'s Mus.* 1851, p. 7.

*Semnopithecus cinereus*, Mivart, *Proc. Zool. Soc.* 1864, p. 626.



*Presbytes cristatus*, (*nec Raffles*), *Blyth, Journ. As. Soc. Bengal*, vol. xlv, 1875, ex. no., p. 9.

*Presbytes melanopus*, *Blyth, Journ. As. Soc. Beng.* 1875, ex. no. p. 9.

*Hab.* Siam and Malayan Peninsula.

23a. A stuffed adult male and its skull, No. 39A of Blyth's Catalogue: brown, passing into rusty brown on the occipital portion of the crest, and into blackish brown on the parietal and frontal regions, on the hands and feet, and on the tail. Under parts, and the hinder two thirds of the outsides of the thighs, yellowish; outside of tibial portion of limb greyish brown. The hair of the head radiating from two centres on the frontal, enclosing a short crest, forwardly directed, continuous with the higher peaked, laterally compressed, parieto-frontal crest.

There are generally only four tubercles on the last molar of the lower jaw, but in one of the skulls in this Museum there is a distinct rudimentary fifth talon.

Malacca. Presented by R. W. G. Frith, Esq., 1846.

b. A stuffed adult female and skull, No. 39B of Blyth's Catalogue; considerably paler than the preceding. Malacca. Presented by the Rev. F. W. Lindstedt, 1846.

c. The skin of an adult female, No. 38C of Blyth's Catalogue: paler than the last specimen. Malacca. Presented by R. W. G. Frith, Esq., 1846.

d. A stuffed young female, No. 38D of Blyth's Catalogue. The brown colour is confined on the back by a well-defined area, the sides being yellowish. Last half of tail bushy and dark brown. Malacca. Presented by the Rev. F. W. Lindstedt, 1846.

e. Skin, skull, and bones of the trunk of an adolescent male. Presented by Wm. Rutledge, Esq., 29th December 1878.

#### 24. *Semnopithecus femoralis*.

*Simia maura*, *Raffles, Trans. Lin. Soc.* vol. xiii, 1822, p. 247.

*Semnopithecus femoralis*, *Horsfield, Appendix, Life of Sir T. S. Raffles*, 1830, p. 643; *Anderson, Anat. & Zool. Resch.* 1878, p. 30.

*Semnopithecus chrysomelas*, *Müller, Tijdsch. voor. Natuur. Gesch.* Dl. v, pts. i and ii (1838), (*Plate*), p. 138.

*Semnopithecus sumatranus*, *Müller and Schlegel, Verhandl.* 1839-44, pp. 61, 73, tab. 10 bis, fig. 1 ♂.

*Simia femoralis*, *Cantor, Journ. As. Soc. Beng.* vol. xv, 1846, p. 175.

*Hab.* Sumatra and Borneo.

24a. A stuffed adolescent female: blackish brown above, passing into black on the hands and feet; beard and all the under parts yellowish white, but with a greyish tint on the sides of the chest; inside of the fore and hind limbs pure pale yellowish, running as a mere but prominent line to the wrists and ankles. A narrow, unsullied yellowish-white line down the centre of the chest and belly; tail greyish at the base underneath. Purchased, 11th December 1867.

b. A stuffed adult female like the preceding, and its skull, but the chest and belly are greyish black, with the exception of the narrow median yellow white line; the white on the inside of the limbs is confined to the brachium and thigh; beard sparse and greyish. Presented by Wm. Rutledge, Esq., 6th July 1869.

c. Skin and bones of the trunk of a young female, like the preceding, but with the white of the inside of the fore limbs prolonged to the wrist. Presented by Wm. Rutledge, Esq., 10th April 1876.

#### 25. *Semnopithecus melalophus*.

*Semnopithecus melalophus*, *F. Cuv., Hist. Nat. des Mammif.*, t. ii, livr<sup>e</sup>. xxx. Juillet 1821, pl. iv; *Anderson, Anat. & Zool. Resch.* 1878, p. 34.

*Semnopithecus flavimanus*, *Lesson, Cent. Zool.* 1830, Augt. p. 109, pl. xl.

*Semnopithecus sumatranus*, *var. aurata*, *Müller and Schlegel, Verhandl.* 1839-44, pl. x, bis, fig. 2, head of ♀.

*Presbytes melalophus*, *Gray, Hand-list Mamm. B. M.* 1843, p. 2.

*Presbytes flavimana*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3.

*Presbytes nobilis*, *Gray, Hand-list Mamm. B. M.* 1843, p. 3.

*Semnopithecus nobilis*, *Gray, Cat. Monkeys and Lemurs, B. M.*, 1870, p. 17.

*Hab.* Sumatra.

25a. A stuffed young female, the skull and bones of the trunk; uniform pale yellowish-white, except on the crest and back, which are marked with blackish brown; hands and feet yellowish; face in life leaden bluish black, with whitish around the eyes and lips. Crest erect and laterally compressed. Presented by Wm. Rutledge, Esq., 4th December 1874.

b. A stuffed still younger female, and its skull: the same as the preceding. Presented by Wm. Rutledge, Esq., 11th May 1875.

c. The skull of a female resembling *a*, but with outside of the limbs marked with orange-yellow, a black crest and the



back much darker. Presented by Wm. Rutledge, Esq., 13th May 1875.

*d.* Skin, skull, and bones of the trunk of an adult female: crest black in front and greyish behind; the back much more darkly marked with blackish than the previous specimens; pale rusty brown or yellow on the sides; outside of the limbs and hands yellowish; tail pale yellowish-brown, marked with darker; under parts whitish. Presented by Wm. Rutledge, Esq., 6th November 1874.

*e.* The skin of an adolescent female and skull: equally dark on the back with the last specimen, but with less yellow on the sides and limbs. Presented by Wm. Rutledge, Esq., 18th August 1875.

*f.* The skin, skull, and bones of the trunk of an adult male of the same coloration as *d*, but the feet yellower than the outside of the limbs. Presented by Wm. Rutledge, Esq., 6th November 1875.

*g.* The skin of an adolescent male, and its viscera in alcohol: this specimen resembles *d*. Presented by Wm. Rutledge, Esq., 6th June 1876.

*h.* The natural skeleton of an adult male. Presented by Wm. Rutledge, Esq., 8th May 1876.

*i.* The disarticulated skeleton of an adolescent female. Presented by Wm. Rutledge, Esq., 4th July 1875.

*j.* The skin, skull, and bones of the trunk of an adult female. Presented by Wm. Rutledge, Esq., 20th October 1876.

*k.* The skeleton of a young female. Presented by Wm. Rutledge, Esq., 17th October 1876.

*l.* An adult male in alcohol. Presented by Wm. Rutledge, Esq., 10th June 1879.

#### SUB-GENUS NASALIS, Geoff., 1812.

#### 26. *Semnopithecus (Nasalis) larvatus*.

Le Kahau, *Wurmb, Batav. Genootsch. Verhand.* Bd. iii, 1781, p. 145.

La guenon à long nez, *Buffon, Hist. Nat. Suppl.* t. vii, 1879, p. 53, pls. xi and xii.

Le Kahau, *Audebert, Hist. Nat. des Singes*, Fam. iv, sect. ii, fig. i, 1797.

The Proboscis Monkey, *Shaw, Genl. Zool.* vol. i, pt. i (1800), pl. 22.

*Cercopithecus larvatus*, *Wurmb, op. cit.* p. 145.

*Nasalis larvatus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 91.

*Cercopithecus nasicus*, *Desmarest & Virey, Nouv. Dict. d'Hist. Zool.* t. xv, 1817, p. 574.



- Cercopithecus* (*Nasalis*) *nasicus*, *Desmarest, Mamm.* 1820, p. 55.  
*Simia nasica*, *F. Cuv., Dict. des Sc. Nat.* t. xx, 1821, p. 32.  
*Semnopithecus nasicus*, *Desmoulins, Dict. Class. d'Hist. Nat.* t. vii, 1825, p. 570.  
*Nasalis recurvus*, *Vigors & Horsfield, Zool. Journ.* vol. iv, 1828-29, p. 109 (fig. head).  
*Semnopithecus larvatus*, *Fischer, Syn. Mam.* 1829, p. 16.  
*Simia nasalis*, *Martin, Proc. Zool. Soc.* 1837, p. 70.  
*Rhynchopithecus larvatus*, *Dahlbom, Stud. Zool. Fam. Ræg. An.* 1856, p. 93, pl. iv.  
*Semnopithecus* (*Nasalis*) *larvatus*, *Anderson, Anat. & Zool. Resch.* 1878, p. 42.

*Hab.* Borneo.

26a. The skin of an adult female. Purchased, 30th April 1878.

b. A stuffed adolescent female, its skull, and the bones of its trunk. Presented by O. L. Fraser, Esq., 19th November 1878.

c. The skin, skull, and bones of the trunk of a young male: the sacral spot grey. Presented by Wm. Rutledge, Esq., 4th July 1879.

d. The skin, skull, and bones of the trunk of a young female: penultimate molar appearing. Presented by Wm. Rutledge, Esq., 8th July 1880.

GENUS COLOBUS, Illiger, 1811.

#### 27. *Colobus guereza*.

- Colobus guereza*, *Rüppell, Neue Wirb.* p. 1, pl. 1, 1835.  
*Guereza rüppellii*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 19.

*Hab.* Abyssinia.

27a. The skin of an adult male. Shoa, Abyssinia. Presented by W. Ganslandt, Esq., Aden, 1st March 1880.

### II.—SUB-FAMILY CERCOPITHECINÆ.

GENUS CERCOPITHECUS, Erxleben, 1777.

#### 28. *Cercopithecus pygerythrus*.

- Simia pygerythrus*, *F. Cuv., Hist. Nat. des Mammif.* livr. xxiv, Jan. 1821.  
*Cercopithecus pygerythrus*, *Desm., Mamm. Suppl.* 1822, p. 534.  
*Cercopithecus lalandii*, *Is. Geoff. St.-Hil., Archiv. du Mus.* t. ii, 1843, p. 561.

*Cercopithecus faunus*, Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 10.

*Chlorocebus pygerythrus*, Gray, *Cat. Monkeys & Lemurs*, B. M., 1870, p. 25.

*Hab.* South Africa, Cape of Good Hope, banks of the Zambesi and Batoka, and Mozambique.

28a. A stuffed adult male, No. 23A of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1857.

b. A stuffed adult male, considerably darker and without the yellowish tint on the back and sides, but in other respects resembling this species. Purchased, 1865.

c. The skin, skull, and bones of the trunk of an adolescent male: resembling 31a, and like the last specimen, but with a blue scrotum. Presented by Wm. Rutledge, Esq., 18th November 1876.

d. The skin of an adult male, and its skull: resembling the last specimen. This animal lived for some years in the Zoological Gardens, and bred with its female, the face of the young animal being white. Presented by the Zoological Gardens, 29th May 1880.

e. A stuffed adolescent male. Purchased, 28th July 1869.

#### 29. *Cercopithecus sabæus*.

Le grivet, F. Cuv., *Hist. Nat. des Mammif.*, t. i, livr.<sup>e</sup> vii, Juin 1819.

*Simia sabaena*, Linn., *Syst. Nat.*, 12th ed., p. 38, No. 18, non Syn. Edwards (nec *Cercop. sabæus*, auct. recent.)

*Cercopithecus sabæus*, Is. Geoff. St.-Hil., *Compt. Rend. de l'Acad. de Sc.* 1850, p. 874; *Cat. Method. des Mammif.* 1851, p. 22.

*Cercopithecus griseoviridis*, Desm., *Mamm.* 1822, p. 61.

*Cercopithecus engythithea*, Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 10.

*Chlorocebus engythithea*, Gray, *Cat. Monkeys & Lemurs*, B. M., 1870, p. 26.

*Hab.* Abyssinia.

29a. A stuffed adult male and its skull, No. 22A of Blyth's Catalogue. Presented by C. C. Egerton, Esq., 1836.

b. A young female, stuffed, No. 22B of Blyth's Catalogue. Cape de Verde Islands. Purchased, 1847.

c. An adolescent male, partially stuffed, in bad condition; rather grey, but broadly punctulated with yellow. No. 24A of Blyth's Catalogue. Abyssinia. Presented by Dr. E. Rüppell, 1856.

*d.* The skin of an adult male: much more yellow than the preceding individual; tail pale yellow; white below, and with a well-marked yellowish terminal tuft. Adigrat, Tigré, Abyssinia, 8,000 feet, April 1868. W. T. Blanford, Esq. Presented by the Abyssinian Expedition, 1868.

*e.* The skeleton of an adult male. Anseba Valley, Abyssinia, 4,000 feet. W. T. Blanford, Esq. Presented by the Abyssinian Expedition, 1868.

*f.* A skull, by exchange with H. Lydekker, Esq., 5th December 1877.

*g.* The skeleton of a young male. Presented by Wm. Rutledge, Esq., 24th February 1880.

### 30. *Cercopithecus albogularis*.

*Cercopithecus albogularis*, Fraser, *Zool. Typica*, pl. 2. 1848-49.

*Semnopithecus albogularis*, Sykes, *Proc. Zool. Soc. Lond.* 1832, p. 18.

*Cercopithecus monoides*, Is. Geoff. St.-Hil., *Compt. Rend.*, t. xv, p. 1038; Blyth, *Cat. Mamm. As. Soc. Beng.*, 1863, p. 10.

*Hab.* East Africa.

30*a.* A stuffed young female, No. 25A of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1853.

*b.* A stuffed young male: the callosities surrounded by a narrow line of deep rusty, which extends on to the under surface of the base of the tail. Purchased, 16th March 1866.

*c.* The skin, skull, hyoid and bones of the trunk of a fine adult male; no rufous around the callosities or on the under parts of the tail. The white of the side of the neck and between the arms anteriorly extending well up the side of the neck as an imperfect collar. Purchased, 26th November 1875.

*d.* The skeleton of a young male. Purchased, 5th June 1869.

*e.* The skin, skull, and bones of the trunk of an adult male. Purchased, 17th June 1878.

### 31. *Cercopithecus mona*.

*La mone*, Audebert, *Singes*, 1797, Fam. iv, Sect. 11, fig. 7.

*Simia mona*, Erxleben, *Syst. Reg. An.* 1777-8, p. 32; Schreber, *Säugeth. Suppl.*, pl. i, p. 97, 1840, pl. 15; F. Cuv., *Hist. Nat. des Mammif.* t. i. livr. ix, Août 1819.

*Hab.* West Africa.

31*a.* The skin, skull, and bones of the trunk of a young male. Purchased, 8th June 1878.



b. An adult male in alcohol. Presented by Wm. Rutledge, Esq., 25th February 1879.

c. The skin, skull, and bones of the trunk of a young male. Purchased, 27th November 1879.

d. The skeleton of an adult. Senegal. By exchange, 21st January 1879.

### 32. *Cercopithecus leucampyx*.

Diane femelle, *F. Cuv., Hist. Nat. des Mammif.* vol. iii, livr.<sup>e</sup> xlii, Juin 1824.

*Simia leucampyx*, *Fischer, Syn. Mamm.* 1829, p. 20.

*Cercopithecus diadematus*, *Is. Geoff. St.-Hil., Voyage de Bélanger*, 1830, p. 51.

*Cercopithecus pluto*, *Gray, Proc. Zool. Soc. Lond.* 1848, p. 57, fig. pl. 3.

*Hab.* West Africa.

32a. A skull bisected. By exchange with H. Lydekker, Esq., 5th December 1877.

b. The skeleton of an adult female. Angola. By exchange, 21st January 1879.

c. The skeleton of a female, by exchange, 21st January 1879.

### 33. *Cercopithecus ruber*.

*Simia patas*, *Erxleben, Syst. Reg. An.* 1777-78, p. 34; *Schreber, Säugeth.* Bd. i, 1774, p. 98, pl. 16.

*Simia rubra*, *Gmelin, Linn. Syst. Nat.* 1788, pp. 34-42.

*Cercopithecus ruber*, *Is. Geoff. St.-Hil., Tables des Quad.* 1812; *Blyth, Cat. Mamm. As. Soc. Beng.* 1863, p. 11.

*Chlorocebus ruber*, *Gray, Cat. Monkeys & Lemurs, B. M.* 1870, p. 25.

*Hab.* West Africa.

33a. A skull of an adolescent, No. 26A of Blyth's Catalogue.

b. The skin, skull, and bones of an adult male. Presented by Wm. Rutledge, Esq., 18th January 1879.

c. The skin, skull, and bones of the trunk of an adult female. Presented by O. L. Fraser, Esq., 27th October 1880.

### 34. *Cercopithecus petaurista*.

*Simia petaurista*, *Erxleben, Syst. Reg. Nat.* 1777-78, p. 35; *Schreber, Säugeth.* 1774, bd. 1, p. 103, pl. 19B.

*Cercopithecus ascanias*, *Audebert, Hist. Nat. des Singes et Makis*, Fam. iv, Sect. ii, fig. xiii; *Schreber, Säugeth.* pl. 19C.

*Hab.* West Africa.

34a. The skin, skull, and bones of the trunk of a young male. Presented by Wm. Rutledge, Esq., 29th October 1878.

### 35. *Cercopithecus diana*.

*La diane*, *Audebert, Hist. Nat. des Singes*, 1797, Fam. v, Sect. 2, pl. 6.  
*Simia diana*, *Erxleben, Syst. Reg. An.* 1777, p. 30; *Linn., Syst. Nat.* 12th ed., 1766, p. 38.

*Hab.* West Africa.

35a. The skin, skull, and bones of the trunk of a young female. Presented by Wm. Rutledge, Esq., 9th July 1878.

b. The skeleton of a young male. Purchased, 18th May 1879.

## GENUS CERCOCEBUS, Geoffroy, 1812.

### 36. *Cercocebus fuliginosus*.

*Mangabey*, *Audebert, Singes*, Fam. iv, Sect. ii, p. 15, pl. 9.  
*Cercopithecus fuliginosus*, *Kuhl, Beitr.* 1820-24, p. 14.  
*Cercocebus fuliginosus*, *Geoff., Ann. du Mus.* t. xix, p. 28.

*Hab.* West Africa.

36a. The skin, skull, and bones of the trunk of an adolescent male. Purchased, 9th May 1879.

b. The skin, skull, and bones of the trunk of a young male. Presented by O. L. Fraser, Esq., 14th October 1880.

## GENUS MACACUS, Lacépède, 1803.

### 37. *Macacus sinicus*.

*Le bonnet chinois*, *Buffon, Hist. Nat.* t. xiv, 1766, pp. 224, 241, pl. xxx.  
The Chinese Monkey, *Pennant, Hist. Quad.*, vol. i, 1793, p. 209.  
*Simia sinica*, *Lin., Mantissa Plant.* 1771, p. 521.  
*Cercopithecus sinicus*, *Erxleben, Syst. Reg. An.* 1777, p. 41.  
*Cynocephalus sinensis*, *Latr., Hist. Nat. de Buffon* (Sonnini ed.) t. xxxvi (1809), p. 293.  
*Cercocebus radiatus*, *Is. Geoff. St.-Hil., Ann. du Mus.* 1812, t. xix, p. 98.  
*Pithecus radiatus*, *Desmarest, Nouv. Dict. d'Hist. Nat.* t. xvi i (1817), p. 325.

*Simia sinica*, *F. Cuv.*, *Hist. Nat. des Mammif.* Juin 1820, livr.<sup>e</sup> xviii.  
*Cercopithecus radiatus*, *Kuhl*, *Beitr. zur Zool.* 1820, p. 13.

*Inuus* (*Cercocebus*) *radiatus*, *Wagner*, *Schreber*, *Säugeth. Suppl.*  
 bd. i, 1840, p. 140.

*Macacus sinicus*, *Blyth*, *Journ. As. Soc. Beng.* vol. xvi, 1847, p.  
 1272; *Anderson*, *Anat. & Zool. Resch.* 1878, p. 90.

*Inuus* (*Macacus*) *sinicus*, *Wagner*, *Schreber*, *Säugeth.*, *Suppl. Bd. v*,  
 1855, p. 56.

*Pithecius* (*Macacus*) *sinicus*, *Dahlbom*, *Stud. Zool. Fam. Ræg. An.*  
 1856, pp. 117, 119.

*Macacus radiatus*, *Blyth*, *Cat. Mamm. As. Soc. Mus.* 1863, p. 8;  
*Jerdon*, *Mamm. Ind.* 1867, p. 12.

*Hab.* Southern India.

37a. A stuffed adult male; uniform olive brown above and on the outside of the limbs and upper surface of the tail. The laterally divided hair on the forehead dark brown, passing into greyish brown on the sacral region in reflected lights. Under parts pale greyish-yellow. Purchased, 12th June 1870.

b. A stuffed adult male like the last. Madras. Presented by Dr. J. Anderson, 21st February 1866.

c. A stuffed adult male, about the same age as the preceding, but darker, more especially on the root of the tail and on the groin. Purchased, 27th December, 1867.

d. A stuffed half-grown female, No. 18A of Blyth's Catalogue: darker than any of the preceding males. Purchased, 1844.

e. A stuffed female, about the same size as the last, but paler. Purchased, 5th March 1868.

f. A stuffed younger female, and its skull: darker than any of the foregoing animals. No. 19 of Blyth's Catalogue, but not entered by him in his list. Sent from Formosa by R. Swinhoe, Esq., 1859.<sup>1</sup> The skull of this specimen, No. 19A of Blyth's Catalogue. Presented by R. Swinhoe, Esq., 1859.

g. A stuffed young female, slightly paler than f. Purchased, September 1866.

h. The skin of a young female. Presented by Wm. Rutledge, Esq., 5th January 1875.

i. The natural skeleton of a young female: 12D, 6L, 3S, and 28C vertebrae. Presented by Wm. Rutledge, Esq., 5th January 1875.

j. The natural skeleton of an adolescent female. Purchased, 3rd June 1868.

k. The disarticulated skeleton of a young animal. Purchased, 25th September 1866.

<sup>1</sup> *Journ. As. Soc. Beng.* vol. xxix, p. 87.



*l.* The skull of an adult male. Presented by Dr. J. Anderson, 1865.

*m.* The skeleton of an adult female. Presented by Raja Rajendra Lal Mullick, Bahadur, 7th December 1874.

*n.* A newly-born male in alcohol, bred in the Zoological Gardens, from a pair brought from Madras. Presented by the Zoological Gardens, 22nd June 1880.

### 38. *Macacus pileatus*.

The Rilawa, *Knox, Hist. Rel. Ceylon*, 1681, ch. vi, p. 25.

*La guenon couronnée*, *Buffon, Hist. Nat. Suppl. t. vii*, 1789, p. 61, pl. xvi (juv.)

The Rilloo, *Pennant, Hist. Quad.* vol. i. 3rd ed. 1793, p. 209.

Le bonnet chinois, *Audebert, Hist. Nat. des Singes*, 1797, Fam. iv, sect. ii, fig. 11.

The Rollewai, *Blyth, Journ. As. Soc. Beng.* vol. xiii, 1844, p. 476.

*Simia pileata*, *Shaw, Genl. Zool.* vol. i, pt. i, 1800, p. 53.

*Cercocebus sinicus*, *Is. Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 98.

*Pithecus sinicus*, *Desmarest, Nouv. Dict. d' Hist. Nat.* t. xviii, 1817, p. 324.

*Cercoptes sinicus*, *Kuhl, Beitr. zur Zool.* 1820, p. 13.

*Macacus sinicus*, *Desmarest, Mamm.* 1820, p. 64.

*Inuus (Cercocebus) sinicus*, *Wagner, Schreber, Säugeth. Suppl. Bd. i*, 1840, p. 139.

*Macacus pileatus*, *Blyth, Journ. As. Soc. Beng.* vol. xvi, 1847, p. 1272;

*Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 9; *Anderson, Anat. & Zool. Resch.* 1878, p. 91.

*Inuus (Macacus) pileatus*, *Wagner, Schreber, Säugeth. Suppl. Bd. v* (1855), p. 55.

*Pithecus (Macacus) pileatus*, *Dahlbom, Stud. Zool. Fam. Ræg. An.* 1856, pp. 117 & 119.

#### *Hab. Ceylon.*

38*a.* A stuffed adolescent male, No. 19A of Blyth's Catalogue: rich orange or rufous brown. Ceylon. Presented by R. Templeton, Esq., 1848.

*b.* A stuffed adolescent female, No. 19B of Blyth's Catalogue: not so richly coloured as the last. Ceylon. Presented by R. Templeton, Esq., 1848.

*c.* A skull, imperfect. Ceylon. Presented by E. L. Layard, Esq.

*d.* A skull. Ceylon. Presented by E. L. Layard, Esq.

### 39. *Macacus cynomolgus*.

Le Macaque, *Buffon, Hist. Nat.* t. xiv, 1776, p. 190.

The Philippine monkey, *Pennant, Syn. Quad.* 1771, p. 121.

- Simia cynomolgus*, *Lin.*, *Syst. Nat.* 12<sup>me</sup> éd., vol. i, 1766, p. 38.  
*Cercopithecus cynomolgus*, *Eracleben*, *Syst. Règ. Animal*, 1777, p. 28.  
*Cynocephalus cynomolgus*, *Latr.*, *Hist. Nat. de Buffon* (Sonnini ed.), t. xxxvi, 1809, p. 292.  
*Cercocebus cynomolgus*, *Geoff. St.-Hil.*, *An. du Mus.* t. xix (1812), p. 99.  
*Pithecus cynomolgus*, *Desmarest*, *Nouv. Dict. d'Hist. Nat.* t. xviii, 1817, p. 323.  
*Macacus cynomolgus*, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>a</sup>. iii, Fév. 1819; *Blyth*, *Cat. Mam. As. Soc. Mus.* 1863, p. 9; *Anderson*, *Anat. & Zool. Resch.* 1878, p. 73.  
*Simia fascicularis*, *Raffles*, *Trans. Linn. Soc.*, vol. xiii, 1822, p. 246.  
*Macacus carbonarius*, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>a</sup>. l. ii, Oct. 1825; *Cat. Mam. As. Soc. Mus.* 1863, p. 9.  
*Macacus aureus*, *Is. Geoff. St.-Hil.*, *Zool. Voy. de Bélanger*, 1834, p. 58.  
*Cercopithecus cynosurus*, *Helper*, *Journ. As. Soc. Beng.* vol. vii, 1838, p. 858.  
*Semnopithecus buku*, *Martin*, *Mag. Nat. Hist.* (Charlesworth), vol. ii, new ser. 1838, p. 435.  
*Semnopithecus fascicularis*, *Waterhouse*, *Cat. Mamm. Zool. Soc. Mus. Lond.* 1838 (2nd ed.), p. 4.  
*Inuus (Cercocebus) cynomolgus*, *Wagner, Schreber, Säugeth. Suppl.* Bd. i, 1846, p. 135.  
*Inuus (Cercocebus) aureus*, *Wagner, Schreber. Säugeth. Suppl.* Bd. i, 1840, p. 138.  
*Semnopithecus kra*, *Lesson*, *Sp. des Mammif.* 1840, p. 65.  
*Macacus auratus*, *Müller und Schlegel*, *Verhandl.* 1839-44, p. 49.  
*Macacus philippensis*, *Is. Geoff. St.-Hil.*, *Cat. Méthod. des Mammif.* 1851, p. 29.  
*Inuus (Macacus) cynomolgus*, *Wagner, Schreber, Säugeth. Suppl.* Bd. v, 1855, p. 52.  
*Inuus (Macacus) palpebrosus*, *Wagner, Schreber, Säugeth. Suppl.* Bd. v, 1855, p. 54.  
*Pithecus (Macacus) cynomolgus*, *Dahlbom*, *Stud. Zool. Fam. Règ. An.* 1856, pp. 118, 120.  
*Pithecus (Macacus) aureus*, *Dahlbom*, *Stud. Zool. Fam. Règ. An.* 1856, pp. 118, 120.  
*Pithecus (Macacus) philippensis*, *Dahlbom*, *Stud. Zool. Fam. Règ. An.* 1856, pp. 118, 120.  
*Macacus fur*, *Slack*, *Proc. Acad. Nat. Sc. Philadelph.* 1867, p. 36 (plate).  
*Macacus cristatus*, *Gray*, *Cat. Monkeys & Lemurs*, *B. M.*, 1870, p. 30.  
*Macacus assamensis*, *Gray*, *Cat. Monkeys & Lemurs*, *B. M.*, 1870, p. 31.

*Hab.* Irrawadi valley, Burma, through Malayan Peninsula and islands; Siam.

39a. A stuffed adult male and skull, No. 20A of Blyth's



Catalogue: this has evidently been a Menagerie specimen. Faded, but brownish-olive above with a slight rufous yellow tint, brightest on the head; yellowish grey on the sides of the head and on the feet. Purchased, 1844.

b. A mounted ferine adult male and its skull: olive brown above, passing into a greyish olive on the outside of the limbs: dark olive-brown on the frontal region, and greyish around the face, which is covered with short hairs; beard and whiskers rather profuse and greyish; fingers and toes dark brown; face dusky fleshy; upper eyelids white; tail brownish above in its first third, olive yellowish below and pale brownish-olive in its last two thirds; under parts greyish, differing but little in tint from the outside of the limbs, but the hairs not annulated; tail nearly as long as the body; hair of head smooth and directed backwards. Desertion Creek, Elephant Point, banks of Irrawadi, near Rangoon. Presented by J. Armstrong, Esq., 27th January 1876.

c. The skin and skull of an adult ferine male, like the last specimen. Arakan. Procured by the Museum Collector, 1871.

d. The skin of a wild adult male. Tenasserim. Houg-darau, Maulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

e. The skin of a wild adult male. Tenasserim. Houg-darau, Maulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

f. The skin of a wild young male. Tenasserim. Houg-darau, Maulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

g. The skin of a wild female. Tenasserim. Houg-darau, Maulmain District. Collected by Mr. Limborg. Presented by Dr. J. Anderson, 10th December 1880.

h. The skull of a male, but not fully grown. No. 20D of Blyth's Catalogue.

i. The skull of an adult female, No. 21E of Blyth's Catalogue: teeth large. Regarded by Blyth as a skull of *M. carbonarius*. Arakan. Presented by Sir Arthur P. Phayre, 1843.

j. The skull of an adult male. No history.

k. The skull of an adult male. No history.

l. The skull of an adult female, No. 20E of Blyth's Catalogue. No history.

m. The skull of an adult female, No. 21D of Blyth's Catalogue. Arakan. Presented by Sir A. P. Phayre, 1843.



n. The natural skeleton of a young animal. Presented by Dr. J. Anderson, April 1866.

Smaller var. (*M. carbonarius*).

o. A stuffed adult male and its skull: rich yellowish-brown, darkest on the head, paler on the outside of the limbs; tail brown above at base, greyish yellow throughout the greater part of its extent; temporal region and sides of the face greyish, also the under parts of the body. No. 21A of Blyth's Catalogue. Purchased, 1844.

p. A stuffed adolescent male and its skull: all the teeth through; the animal, however, is smaller than o; brownish olive, passing into grey on the sides of the head, lower half of the hind limbs, and under surface and inside of the limbs; long black superciliary hairs; upper eyelids bluish white; face and ears black; tail black at the base, brown olive in the remainder, and greyish yellow below. Purchased, December 1865.

q. A stuffed adult male and its skull: rather bright rusty red-brown on the head, nape, shoulders, and back, as far as the loins; passing into brown on the loins and into black on the upper surface of the tail in its proximal third; supraorbital hairs black; temporal region and sides of the head and beard greyish; outside of the limbs dark olive-brown, speckled with black; inside of the limbs, under aspect of the trunk, and rest of the tail below and above greyish. Presented by Wm. Rutledge, Esq., 12th June 1870.

r. A stuffed young male and its skull: brown above, yellow speckled; olive grey on the outside of the limbs; tail blackish above and in its first portion, greyish below and in the rest of its extent; supraorbital hairs and some on the forehead black; temporal region and sides of the head greyish; under parts greyish. Purchased, 16th October 1868.

s. A stuffed adult female and its skull: dark olive-brown, speckled with yellowish and black; paler on the limbs; blackish on the base of the tail above, rest of the tail greyish yellow; head coloured as in the last specimen; whiskers rather long. Presented by Wm. Rutledge, Esq., 10th March 1868.

t. A stuffed adolescent female and skull: the same as the last specimen, but the tail darker, being nearly brown. Presented by Dr. J. Anderson, 17th April 1868.

u. A stuffed young male and skull: resembling 43r, but greyer on the limbs. Purchased, 17th April 1870.

v. A stuffed young male and skull, No. 21B of Blyth's

Catalogue: uniform rich brown, darkest on the head and back, and brightest on the outside of the hind legs; black supraorbital hairs, with blackish hairs on the cheeks; under parts yellowish, with an orange tint; tail yellowish brown, dark brown above; the fur has a faint trace of yellowish annulations. Arakan. Presented by Capt. J. Abbott, 1844.

*w.* A stuffed young female and skull, No. 20C of Blyth's Catalogue: yellowish brown, with an olive tinge and richly punctulated with yellow, paler on the limbs and darkening on the middle of the head, on which the hairs have broad black tips; supraorbital hairs black; sides of the head yellowish; under parts yellowish white. Timor. Presented by W. H. Benson, Esq., 1846.

*x.* A stuffed young female and skull, No. 20B of Blyth's Catalogue: dark fuliginous brown, with a slightly rusty tinge on the hind limbs; under parts yellowish; the hairs show only a faint trace of commencing annulations on the head, which is still less marked on the trunk. Nicobar Islands. Presented by Capt. Lewis, 1846.

*y.* The skeleton of a young male. This animal was brown above, the hairs on the anterior half of the head being broadly tipped with black; the sacral region and outside of the thighs were washed with blackish; tail black above, in its first two thirds, under surface yellowish white. Presented by Wm. Rutledge, Esq., 25th September 1871.

*z.* The flat skin and skeleton of an adult female resembling 39*g*. Presented by G. Nevill, Esq., 1st July 1873.

*aa.* The flat skin and skeleton of an adult female, like last specimen. Presented by Wm. Rutledge, Esq., 9th July 1873.

*bb.* The flat skin and skeleton of a female that resembled *M. aureus*, Is. Geoff. Presented by Wm. Rutledge, Esq.

*cc.* A very young female, in alcohol; long hair on the crown of the head, tending to form a crest. Presented by O. L. Fraser, Esq., 9th September 1878.

*dd.* The flat skin and skeleton of an adult male of the rufous variety. This specimen was the parent of a hybrid, bred in the Zoological Gardens, Calcutta, from *M. rhesus*. Presented by the Zoological Gardens, 5th August 1878.

*ee.* The skin and skull of an adolescent male: general colour dark. Presented by Wm. Rutledge, Esq., 5th October 1880.

*ff.* A very young male, in alcohol: blackish brown above, brown on the outside of the limbs and tail, and yellow below;



hair on the head rather long, but backwardly directed in two lines, one on either side of mesial line of frontal. Temples nearly bare. These are essentially the characters of extreme youth in this species. Purchased, 10th October 1867.

gg. A young male, in alcohol, and its skull. Purchased, 26th May 1870.

hh. A young female, in alcohol. Presented by Wm. Rutledge, Esq., 29th September 1871.

ii. A fœtus in alcohol. Penang. Presented by Dr. F. Stoliczka, October 1870.

jj. A young male, in alcohol: dark coloured. Presented by Wm. Rutledge, Esq., 19th July 1879.

kk. The skeleton of an adult female. Purchased, 6th August 1868.

ll. The skeleton of an adult male. Purchased, July 1866.

mm. The skull of a young female. Purchased, 20th December 1867.

nn. The skeleton of an adult male. Purchased, 4th January 1868.

oo. The skeleton of an adult female. Purchased, 8th January 1870.

pp. The skeleton of a young animal. Presented by Dr. J. Anderson, January 1872.

qq. The skull of an adult female. Purchased.

#### 40. *Macacus silenus*.

L'Ouanderou, *Buffon, Hist. Nat.* t. xiv, 1766, p. 174, pl. xviii.

The Lion-tailed Monkey (a), *Pennant, Syn. Quad.* 1771, p. 109, pl. 120, fig. 1.

*Simia leonina* Shaw, *Genl. Zool.* vol. i, pt. i, 1800, p. 34.

*Simia silenus*, *Linn., Syst. Nat.* 12th ed., vol. i, 1766, p. 36.

*Simia veter*, *Gmelin, Linn. Syst. Nat.* vol. i, 13th ed. 1788, p. 30.

*Cercopithecus silenus*, *Erxleben, Syst. Règ. An.* 1777 (*partim*), p. 26.

*Cercopithecus veter*, *Erxleben, Syst. Règ. An.* 1777, p. 24.

*Cercopithecus vetulus*, *Erxleben, Syst. Règ. An.* 1777, p. 25.

*Simia ferox*, Shaw, *Genl. Zool.* vol. i, pt. i (1800), p. 30, pl. xvi.

*Papio silenus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 102.

*Pithecus silenus*, *Desmarest, Nouv. Dict. d'Hist. Nat.* t. xviii, (1817), p. 321.

*Macacus silenus*, *Desmarest, Mamm.* 1820, p. 63; *Anderson, Anat. & Zool. Resch.* 1878, p. 93.

*Inuus* (Maimon) *silenus*, *Wagner, Schreber, Säugeth.* Bd. i, 1840, p. 141, pls. xi B and xi, xi\*.

*Silenus veter*, *Gray, Hand-list Mamm. B. M.* 1843, p. 8.

*Pithecus* (*Macacus*) *silenus*, *Dahlbom, Ind. Zool. Fam. Règ. An.* 1856, pp. 116, 119.



*Inuus silenus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 7; *Jerd., Mamm. Ind.* 1867, p. 10.

*Hab.* Southern India.

40*a.* A stuffed adult male and skeleton, No. 12 A and D of Blyth's Catalogue. Barrackpore Menagerie. Presented, 1843.

*b.* A stuffed adolescent male, No. 12B of Blyth's Catalogue. Presented by J. McClelland, Esq., 1848.

*c.* A stuffed young female. Purchased, 1849. No. 20C of Blyth's Catalogue.

*d.* The skin, and bones of the trunk of an adolescent male. Purchased, 22nd October 1875.

*e.* The skin, skull, and the bones of the trunk of an adolescent male. Presented by Raja Rajendra Mullick, Bahadur, 19th December 1876.

*f.* The skull of an adolescent female. Purchased, 12th February 1866.

#### 41. *Macacus rhesus*.

Le macaque à queue courte, *Buffon, Hist. Nat. Suppl. t. vii*, 1789, p. 56, pl. xiii.

A supposed new monkey, *Anderson, Proc. Zool. Soc.* 1872, p. 529 (figs. of skull).

Le rhesus, (*Simia rhesus*) *Audebert, Hist. Nat. des Singes*, 1797, Fam. ii, sect. i, pl. 1.

The wrinkled baboon, *Shaw, Gen. Zool.* vol. i, pt. 1, 1800, p. 33.

The bandar, *Hodgson, Journ. As. Soc.* 1832, vol. i, p. 339.

*Simia erythræa*, *Schreber, Säugeth.* 1775, pl. viii c.

*Macacus erythræus*, *Is. Geoff., Cat. Méthod. des Mammif.* 1851, p. 30.

*Macacus rhesus*, *Desmarest, Mamm.* 1820, p. 66, pl. vii, fig. 2 (Buffon); *Anderson, Anat. & Zool. Resch.* 1878, p. 55.

*Inuus* (Maimon) *erythræus*, *Wagner, Schreber Säugeth. Suppl. bd. i*, 1840, p. 142, pl. viii, c. (fig.; *Buffon*, ix, B.)

*Papio rhesus*, *Ogilby, Mudr. Journ. Lit. & Sc.* vol. xii, 1840, p. 144.

*Macacus* (*pithe*) *oinops*, *Hodgson, Journ. As. Soc. Beng.* vol. ix, 1840, p. 1212, fig. head, p. 1213.

*Macacus oinops*, *Gray, Hand-List Mamm. B. M.* 1843, p. 8.

*Inuus* (*rhesus*) *erythræus*, *Wagner, Schreber, Säugeth. Suppl. bd. v*, 1855, p. 56.

*Pithecus* (*Macacus*) *erythræus*, *Dahlbom, Stud. Zool. Fam. Reg. An.* 1856, pp. 116, 119.

*Inuus assamensis*, *Blyth, Journ. As. Soc. Beng.* vol. xxxiv, 1865, p. 192.

? *Simia fulva*, *Shaw, Gen. Zool.* vol. i, pt. 1, 1800, p. 57.

*Inuus rhesus*, *Is. Geoff. St.-Hil., Ann. du Mus. t. xix*, 1812, p. 101; *Blyth, Cat. Mamm. As. Soc. Beng.* 1863, p. 8; *Jerdon, Mamm. Ind.* 1867, p. 11.

*Pithecus rhesus*, *Desm., Nouv. Dict. d'Hist. Nat. t. xviii, 1817, p. 326.*

*Macacus erythræus*, *F. Cuv., Hist. Nat. des Mamm. Oct. 1819, livr<sup>e</sup> xi ♀ et juv.; March 1821, livr<sup>e</sup> xxvi ♂; May 1821, livr<sup>e</sup> xxviii ♀ March 1825, livr<sup>e</sup> xlvi.*

*Hab.* India generally and ascending the Himalaya to 7,000 feet and upwards (Simla and Nepal); extending into Assam, Arakan, and through Upper Burma to the Province of Yunnan, Western China.

41a. A stuffed adult male, No. 15A of Blyth's Catalogue (domesticated): rufous on the hind limbs and hind quarters. No history.

b. A stuffed adult ferine male, No. 15B of Blyth's Catalogue. Brown anteriorly and on the top of the head, greyish on the sides of the head; washed with rufous on the hind quarters and hind limbs; greyish yellow below; tail well clad. Sundarbans. No history.

c. A stuffed domesticated male, No. 15C of Blyth's Catalogue. Monstrously obese; uniform yellowish brown; bright rusty yellow on the hind quarters. No history.

d. A stuffed very young animal. The young of No. 15D of Blyth's Catalogue: reddish brown on the body, passing into brown on the head; hair not annulated. No history.

e. The skin and skull of an adult wild male: uniform brown on the upper surface of the body and tail; pale greyish brown on the under parts, and on the limbs; no rufous on the hind quarters; an almost black band of supraorbital hairs; moustachial hairs and those of the beard black; the skull fully adult. It differs from the skull of *M. assamensis* in its more elevated orbits, narrower interorbital space and shorter muzzle, besides being smaller in every way than the skull of that species. The extreme length of this skull is 5".19, while the skull No. 42a, that of a male which has only its permanent incisors cutting, the last molar being still in its socket, is already 5".54. The maximum breadth of this adult male skull across the zygomatic arches is 3".30, and that of the much younger skull of *M. assamensis* 3".63. This specimen and its skull are described in *Proc. Zool. Soc. 1872, p. 529, skull figured. Sundarbans. Museum Collector, 26th April 1878.*

f. A stuffed nearly adult ferine male: yellowish grey-brown, passing into fawn on the hind quarters and on the outside of the hind limbs; tail bushy at base and black tipped. Sundarbans. Museum Collector, 11th May 1870.



*g.* The skin and the skull of an adult male: like the last, but darker on the front of the forehead, which is almost black. Sundarbans. Museum Collector, 26th April 1870.

*h.* The skin and the skull of an adolescent male: rusty yellow posteriorly. Sundarbans. Museum Collector, 26th April 1870.

*i.* The skin and the skull of an adolescent male, like the preceding, but not so dark on the fore quarters. Sundarbans. Museum Collector, 26th April 1870.

*j.* The skin and the skull of a younger male: bright yellow posteriorly. Sundarbans. Museum Collector, 26th April 1870.

*k.* The skin of a young male: brown on the head and the middle of the back, unannulated brownish yellow on the sides, and bright rusty yellow on the hind quarters, tail and outside of the thighs. Sundarbans. Museum Collector, 26th April 1870.

*l.* The skin and the skull of an adolescent female, like the last. Sundarbans. Museum Collector, 26th April 1870.

*m.* The skin and the skeleton of an adolescent female: long black supraorbital hairs, and a whorl of black hairs on the sides of the head; hinder half of body bright rufous. This specimen ( $\beta$ ) is the subject from which the figure, pl. iii, in my Anat. and Zool. Resch. was taken. Kakhyen Hills. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1868.

*n.* The skin and the skeleton of an adolescent female: black supraorbital hairs very sparse, and only a few black hairs on the sides of the head; hinder half of the body and outside of hind legs rufous. This specimen is  $\alpha$  of the Anat. and Zool. Resch. Hotha Valley. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1868.

*o.* The skin of a young male: black supraorbital hairs and on the sides of the head as in 41*n*; body generally yellowish, brick-red on the hind quarters and down the outside of the thighs; upper surface of the head brownish; antibrachium olive brown; tail rufous at base, brownish above and yellowish below. Samaguting, Assam. Presented by Captain J. Butler, 4th October 1872.

*p.* The skeleton of an adult female. Presented by Wm. Rutledge, Esq., 5th January 1876.

*q.* The skeleton of a female. Purchased, 22nd February 1867.

*r.* The skeleton of an adolescent male. Purchased, 16th April 1868.



s. The skeleton of an adult female. Purchased, 5th August 1869.

t. The flat skin and skeleton of an adolescent female. Presented by Dr. J. Anderson, 7th May 1870.

u. The skeleton of an adult female: a remarkably large and deep depression on the frontal over the left orbit. Presented by Dr. J. Anderson, July 1876.

v. The skeleton of an adolescent male. Presented by Dr. J. Anderson, July 1876.

w. The skull of an adult male. Purchased, 23rd September 1869.

x. The skull of an adult male. Presented by Dr. J. Anderson, July 1876.

y. The skull of an adult male. Presented by O. L. Fraser, Esq., 17th August 1876.

z. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 23rd September 1878.

#### 42. *Macacus assamensis*.

*Macacus assamensis*, McClelland, *Proc. Zool. Soc. Lond.* 1839, p. 148; *Anderson, Anat. & Zool. Resch.* 1878, p. 64; nec fem. = *M. leoninus*; *Blyth Cat. Mamm. Mus. As. Soc. Bengal*, 1863, p. 8.

*Papio assamensis*, *Ogilby, Royle's Ill. Him. Bot. Mamm.* 1840, p. lix.

*Macacus* (*Pithex*) *pelops*, *Hodgson, Journ. As. Soc. Beng.* vol. ix, 1840, p. 1213; *ibid.*, vol. x, p. 908.

*Macacus pelops*, *Schinz, Syn. Mamm.*, vol. i, 1844, p. 60.

*Inuus* (*rhesus*) *pelops*, *Wagner, Schreber, Säugeth. Suppl. bd. v*, 1855, p. 56.

*Inuus* (*rhesus*) *assamensis*, *Wagner, Schreber, Säugeth. Suppl. bd. v*, 1855, p. 57.

*Inuus assamensis*, *Hutton, Journ. As. Soc. Beng.* vol. xxxiii, 1864, Appendix, p. xiii.

*Inuus pelops*, *Hutton, Journ. As. Soc. Beng.* vol. xxxiii, 1864, Appendix, p. xiii; *Jerdon, Mamm. Ind.* 1867, p. 11.

*Macacus problematicus*, *Gray, Cat. Monkeys and Lemurs, B. M.*, 1870, p. 128.

*Macacus rheso-similis*, *Sclater, Proc. Zool. Soc. Lond.* 1872, p. 495, pl. xxv (juv).

*Hab.* Himalaya, Assam, and Upper Burma.

42a. The skin and skull of an adult male; the tail has about the same proportion to the body as in *M. rhesus*; general colour rusty brown above, darkest over the shoulders and palest on the hind quarters and on the outside of the limbs, in which the brown is less marked; head with an

orange tint, but many of the hairs with black tips; supercilium and an area for the eyes to the ears more or less black, and the upper halves of the ears feebly black tufted, and their lower halves clad with grey hairs; under parts yellowish grey. The species is much larger than *M. rhesus* and more powerfully and more compactly built, and more like a pig-tailed monkey in these respects. The muzzle is long and the face pale fleshy. Obtained near Bhamo, Upper Burma, Second Expedition, Western Yunnan, 1875, and presented by Dr. J. Anderson to the Zoological Gardens, Calcutta, where it lived until the 19th January 1881.

♂. The skin and skull of a young male: uniform brown, darkest on the back. Mishmi Hills, Assam. Presented by Dr. J. Anderson, 6th June 1876.

#### 43. *Macacus leoninus*.

*Macacus nemestrinus* (?) Blyth, *Journ. As. Soc. Beng.* 1844, vol. xiii, p. 473.

*Inuus arctoides*, (?) Blyth, *Journ. As. Soc. Beng.* 1847, vol. xvi, p. 731.

*Macacus leoninus*, Anderson, *Anat. & Zool. Resch. &c.* 1878, p. 52.

*Macacus assamensis*, Anderson, *op. cit.*, p. 65, female figs. 7 & 8, nec. ♂.

*Cercopithecus*, Helfer, *Journ. As. Soc. Beng.* vol. vii, 1838, p. 858.

*Macacus andamanensis*, Bartlett, *Land and Water*, July 24, 1869, vol. viii, p. 57. ♂

*Inuus leoninus*, Blyth, *Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 4; *Cat. Mamm. As. Soc. Mus.* 1863, p. 7.

*Hab.* Arakan, and the valley of the Irrawadi.

43a. The skin of an adult male, No. 14A of Blyth's Catalogue, and the type of the species: a short-legged powerful monkey, with long hair on the shoulders and on the humeral portion of the fore limb, and much shorter hair on the post-scapular area of the trunk; tail about one third the length of the trunk and head, and somewhat tufted at its tip; hair much annulated with brown and yellow, producing a yellowish brown tint, darkening on the hands and feet to brown, with but few annulations in these localities; hair on mesial line of head brown to the occiput, greyish external to this on the forehead and around the face and ears, but a pale brownish band passes down to the orbito-malar angle above the ear; whiskers, and pale brown of head, feebly annulated pale brown and greyish yellow; beard and whiskers well developed, especially the latter, which are continuous with the



long hair before the shoulder; belly and hind quarters clear pale yellowish with a tinge of grey; lower half of inside of limbs annulated as on the external surface; tail almost black above and with the tuft rich rusty yellow, its under surface concolorous with the hind quarters. Arakan. Presented by Sir Arthur P. Phayre, 1844.

*b.* The flat skin and the skeleton of an adolescent male: bright rusty rufous brown on the outside of the hind limbs and lower portion of the sides, which are but little annulated; tail brown above, no rufous. This specimen had lived some time in captivity. Purchased, December 1867.

*c.* The skin and skeleton of an adult female, with its foetus *in utero* in alcohol: like the male, but wanting the brown on the head, the hair of which is but little annulated pale greyish-brown; whiskers forming a ruff, continuous with the well-developed beard; tail pale yellowish-brown, under parts greyish. The skull figured as female of *M. assamensis*, Anat. and Zool. Resch., figs. 7 & 8, p. 66. Second defile of the Irrawadi below Bhamo, Upper Burma. Dr. J. Anderson, 3rd March 1875. Presented by the 2nd Expedition to Western Yunnan.

*d.* The skull of an adult male, regarded by Blyth as the skull of *M. rhesus*. No. 15F of his Catalogue. This is probably the skull of the skin 43a.

*e.* The skin, skull, and bones of the trunk of a young male. Perak. Presented by O. L. Fraser, Esq., 6th January 1878.

#### 44. *Macacus nemestrinus*.

The Pig-tailed Monkey, *Edwards, Gleanings, &c.* 1758, tab. 24, vol. i, pp. 8, 10.

Le Maimon ou Singe à queue de cochon, *Buffon, Hist. Nat.* t. xiv, 1766, pp. 176, 179, pl. xix.

The Pig-tailed Baboon, *Pennant, Syn. Quad.* 1771, p. 105; *Hist. Quad.* vol. i, 3rd ed. 1793, p. 193.

Le Maimon, *Audebert, Hist. Nat. des Singes*, 1797, 2<sup>me</sup> fam., sect. i, pl. ii.

*Simia nemestrina*, *Linn., Syst. Nat.* 12th ed. vol. i, 1766, p. 35.

*Papio nemestrina*, *Erzleben, Syst. Règ. An.* 1777, p. 20.

*Cynocephalus nemestrinus*, *Latreille, Hist. Nat. de Buffon* (Sonnini ed.) 1809, t. xxxvi, p. 291.

*Inuus nemestrinus*, *Geoff. St.-Hil., Ann. du Mus.* 1812, vol. xix, p. 101; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 7.

*Pithecius nemestrinus*, *Desmarest, Nouv. Dict. d'Hist. Nat.* 1817, t. xviii, p. 325.

*Macacus nemestrinus*, *F. Cuv., Hist. Nat. des Mammif.* Août 1820, livr<sup>e</sup>. xix, Jan. 1822, livr<sup>e</sup>. xxxvi; *Anderson, Anat. & Zool. Resch.* 1878, p. 77.

*Simia carpolegus*, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 243.



*Inuus* (*Rhesus*) *nemestrinus*, *Wagner, Schreber, Säugeth. Suppl.* bd. v, 1855, p. 57.

*Pithecus* (*Macacus*) *nemestrinus*, *Dahlbom, Stud. Zool. Fam. Ræg. An.* 1856, pp. 115, 118.

*Hab.* Malayan Peninsula, south of Tenasserim, Sumatra and Borneo.

44a. A stuffed adult male: deep black on the vertex and from the shoulder to the tail, the upper surface of which is also black: the black of the head extends in a narrow line downwards, before the ear; fur short on the shoulders. Purchased, 13th July 1867.

b. A stuffed adult male and its skull: fur rather long on the shoulders and wavy, and annulated with yellow and deep brown; dark brown on the top of the head; the dark-coloured line before the ear but little pronounced; no black on the back. Presented by Wm. Rutledge, Esq., 10th May 1870.

c. The skin and skull of an adult male, No. 13B of Blyth's Catalogue. Purchased, 1843.

d. A stuffed adult male, resembling b in the length and annulation of its fur, but nearly black on the back; stripe before the ear well marked. Presented by Wm. Rutledge, Esq., 27th September 1869.

e. A stuffed somewhat younger male than d, with its skeleton, No. 13A of Blyth's Catalogue: the fur on the shoulders shorter than d; hands and feet tending to dark brown. Purchased, 1843-52.

f. A stuffed much younger male: fur with only a trace of annulation; vertex brownish black; back washed with black; sides and limbs greyish yellow; band before the ear moderately defined. Purchased, 9th November 1866.

g. A stuffed still younger male: top of the head black, also the mesial line of the back from the shoulders along the upper surface of the tail; outside of the limbs brownish yellow. Purchased, 6th September 1866.

h. A stuffed somewhat younger male, intermediate between f and g. Presented by Wm. Rutledge, Esq., 10th March 1870.

i. A stuffed still younger male: head brown, no black on the back. Purchased, 28th August 1867.

j. The skin of an adult male. Purchased, 28th October 1869.

k. The skin of an adult male. Presented by Wm. Rutledge, Esq., 23rd July 1871.

l. The skin of a young male. Purchased, 25th June 1869.

*m.* The skin and skull of a young female: dull fuliginous brown; black on the head and from behind the shoulders along the middle of the back. Presented by O. L. Fraser, Esq., 29th April 1876.

*n.* The skin, skull, and the bones of the trunk of an adult male. Presented by Wm. Rutledge, Esq., 3rd November 1878.

*o.* The skin and the skeleton of an adult male. The fore-arms are bent, although both are healthy hard bones. Presented by the Zoological Gardens, 17th March 1877.

*p.* The skeleton of an adult male. Purchased, 1865.

*q.* The skeleton of an adult male. Purchased, 1866.

*r.* The skeleton of an adult male. Purchased, 6th August 1866.

*s.* The skeleton of an adolescent male. Purchased, 17th September 1866.

*t.* The skull of an adolescent male. Purchased, 18th September 1866.

*u.* The skull of an adult male. No history.

*v.* The skeleton of a young male: 19 caudal vertebræ. Purchased, 27th December 1867.

*w.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 6th July 1869.

*x.* The skeleton of a young female. Presented by Wm. Rutledge, Esq., 5th August 1869.

*y.* The skeleton of an adolescent female. No history.

*z.* The skeleton of an adult male. No history.

*aa.* A skull. No history.

*bb.* The skull of an adolescent female. No history.

#### 45. *Macacus arctoides*.

*Macacus speciosus*, *F. Cuv., Hist. Nat. des Mammif.* Fevr. 1825, livr<sup>n</sup>. xlvii.

*Macacus arctoides*, *Is. Geoff. St.-Hil., Mag. de Zool.* 1833, cl. i, pl. ii (adult); *Anderson, Anat. and Zool. Resch.* 1878, p. 45, pls. i, ii.

*Macacus maurus*, *Is. Geoff. St.-Hil. Voy. de Bélanger, Zool.* 1834, p. 61.

*Papio melanotus*, *Ogilby, Proc. Zool. Soc.* 1839, p. 31.

*Cynopithecus speciosus*, *Lesson, Sp. des Mammif.* 1840, p. 101.

*Inuus* (Maimon) *arctoides*, *Wagner, Schreber. Säugeth. Suppl.* bd. 1, 1840, p. 146.

? *Macacus ursinus*, *Gervais, Hist. Nat. des Mammif.* 1854, p. 93.

*Inuus* (*Inuus*) *arctoides*, *Wagner, Schreber. Säugeth. Suppl.* bd. v, 1855, p. 57.

*Pithecus* (*Macacus*) *arctoides*, *Dahlbom, Stud. Zool. Fam. Reg. An.* 1856, pp. 116, 118.

*Pithecus arctoides*, *Blainville, Ostéogr. Mamm.* t. i, p. 44, 1839-64, atlas ii, pl. vii (skull).



*Macacus tibetanus*, A. M. Edwards, *Comptes Rendus*, Février 14, 1870, vol. lxx, p. 341; *Rech. des Mammif.* 1868-74, p. 244, pls. xxxiv et xxxv.

*Macacus melanotus*, Gray, *Cat. Monkeys and Lemurs*, B. M., 1870, p. 29.

*Macacus brunneus*, Anderson, *Proc. Zool. Soc.* 1871, p. 628; 1872, pp. 203-212, pl. xii (juv.); 1874, p. 652.

*Inuus speciosus*, Blyth, *Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 6.

*Hab.* High country of Cochin China, north-west to Yunnan and Assam, and to Eastern Tibet (Moupin).

45a. The skin, skull, and bones of the trunk of a fine adult male. In life this animal was a dark rich brown, compact, powerful monkey, with rather short limbs, intensely scarlet face, rather long muzzle, rudimentary tail, short radiating hair on the forehead, and long hair on the rest of the head falling forwards over the forehead, the hair before the ears and behind the cheeks being also directed anteriorly; the hair on the neck especially long and also on the shoulders.  $4\frac{1}{2}$  inches to 3 inches on the hinder half of the body; the colour darkest on the head and neck, but a decided reddish tinge on the hinder half of the body and external to the callosities; the latter and the huge scrotum and much-spined penis were rich scarlet in life; the upper surface of the hands and feet tend to black; under parts pale rufous brown; the hair more or less annulated, the annulations being especially numerous on the long hairs of the anterior parts. The skull has the general features of the skull of *M. nemestrinus*, but with a less powerful and considerably shorter muzzle. Kakhien Hills; Bhamo, Upper Burma. Presented to the Zoological Gardens by Dr. J. Anderson.

b. A stuffed young male, its skeleton and its entire viscera preserved in alcohol: dark brown, more or less blotched with blackish; hair laterally divided on the forehead and radiating on the crown; ears with long hair on the inner aspect, projecting a long way external to their margins. The type of *M. brunneus*, Anderson, *Proc. Zool. Soc. Lond.* 1871, p. 628. Kakhien Hills, to the east of Bhamo, Upper Burma. Presented by Dr. J. Anderson, 4th December 1872.

c. A young male, in alcohol: brown, but with the sides of the head yellowish, said to have been procured at Sadiya, Assam. Presented by Dr. J. Anderson, 30th June 1876.

d. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 19th October 1878.



*m.* The skin and skull of a young female: dull fuliginous brown; black on the head and from behind the shoulders along the middle of the back. Presented by O. L. Fraser, Esq., 29th April 1876.

*n.* The skin, skull, and the bones of the trunk of an adult male. Presented by Wm. Rutledge, Esq., 3rd November 1878.

*o.* The skin and the skeleton of an adult male. The fore-arms are bent, although both are healthy hard bones. Presented by the Zoological Gardens, 17th March 1877.

*p.* The skeleton of an adult male. Purchased, 1865.

*q.* The skeleton of an adult male. Purchased, 1866.

*r.* The skeleton of an adult male. Purchased, 6th August 1866.

*s.* The skeleton of an adolescent male. Purchased, 17th September 1866.

*t.* The skull of an adolescent male. Purchased, 18th September 1866.

*u.* The skull of an adult male. No history.

*v.* The skeleton of a young male: 19 caudal vertebræ. Purchased, 27th December 1867.

*w.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 6th July 1869.

*x.* The skeleton of a young female. Presented by Wm. Rutledge, Esq., 5th August 1869.

*y.* The skeleton of an adolescent female. No history.

*z.* The skeleton of an adult male. No history.

*aa.* A skull. No history.

*bb.* The skull of an adolescent female. No history.

#### 45. *Macacus arctoides*.

*Macacus speciosus*, *F. Cuv., Hist. Nat. des Mammif.* Fevr. 1825, livr<sup>n</sup>. xlvii.

*Macacus arctoides*, *Is. Geoff. St.-Hil., Mag. de Zool.* 1833, cl. i, pl. ii (adult); *Anderson, Anat. and Zool. Resch.* 1878, p. 45, pls. i, ii.

*Macacus maurus*, *Is. Geoff. St.-Hil. Voy. de Bélanger, Zool.* 1834, p. 61.

*Papio melanotus*, *Ogilby, Proc. Zool. Soc.* 1839, p. 31.

*Cynopithecus speciosus*, *Lesson, Sp. des Mammif.* 1840, p. 101.

*Inuus* (*Maimon*) *arctoides*, *Wagner, Schreber, Säugeth. Suppl.* bd. 1, 1840, p. 146.

? *Macacus ursinus*, *Gervais, Hist. Nat. des Mammif.* 1854, p. 93.

*Inuus* (*Inuus*) *arctoides*, *Wagner, Schreber, Säugeth. Suppl.* bd. v, 1855, p. 57.

*Pithecus* (*Macacus*) *arctoides*, *Dahlbom, Stud. Zool. Fam. Reg. An.* 1856, pp. 116, 118.

*Pithecus arctoides*, *Blainville, Ostéogr. Mamm.* t. i, p. 44, 1839-64, atlas ii, pl. vii (skull).

*Macacus tibetanus*, A. M. Edwards, *Comptes Rendus*, Février 14, 1870, vol. lxx, p. 341; *Rech. des Mammif.* 1868-74, p. 244, pls. xxxiv et xxxv.

*Macacus melanotus*, Gray, *Cat. Monkeys and Lemurs*, B. M., 1870, p. 29.

*Macacus brunneus*, Anderson, *Proc. Zool. Soc.* 1871, p. 628; 1872, pp. 203-212, pl. xii (juv.); 1874, p. 652.

*Inuus speciosus*, Blyth, *Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 6.

*Hab.* High country of Cochin China, north-west to Yunnan and Assam, and to Eastern Tibet (Moupin).

45a. The skin, skull, and bones of the trunk of a fine adult male. In life this animal was a dark rich brown, compact, powerful monkey, with rather short limbs, intensely scarlet face, rather long muzzle, rudimentary tail, short radiating hair on the forehead, and long hair on the rest of the head falling forwards over the forehead, the hair before the ears and behind the cheeks being also directed anteriorly; the hair on the neck especially long and also on the shoulders,  $4\frac{1}{2}$  inches to 3 inches on the hinder half of the body; the colour darkest on the head and neck, but a decided reddish tinge on the hinder half of the body and external to the callosities; the latter and the huge scrotum and much-spined penis were rich scarlet in life; the upper surface of the hands and feet tend to black; under parts pale rufous brown; the hair more or less annulated, the annulations being especially numerous on the long hairs of the anterior parts. The skull has the general features of the skull of *M. nemestrinus*, but with a less powerful and considerably shorter muzzle. Kakhyen Hills; Bhamo, Upper Burma. Presented to the Zoological Gardens by Dr. J. Anderson.

b. A stuffed young male, its skeleton and its entire viscera preserved in alcohol: dark brown, more or less blotched with blackish; hair laterally divided on the forehead and radiating on the crown; ears with long hair on the inner aspect, projecting a long way external to their margins. The type of *M. brunneus*, Anderson, *Proc. Zool. Soc. Lond.* 1871, p. 628. Kakhyen Hills, to the east of Bhamo, Upper Burma. Presented by Dr. J. Anderson, 4th December 1872.

c. A young male, in alcohol: brown, but with the sides of the head yellowish, said to have been procured at Sadiya, Assam. Presented by Dr. J. Anderson, 30th June 1876.

d. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 19th October 1878.



*m.* The skin and skull of a young female: dull fuliginous brown; black on the head and from behind the shoulders along the middle of the back. Presented by O. L. Fraser, Esq., 29th April 1876.

*n.* The skin, skull, and the bones of the trunk of an adult male. Presented by Wm. Rutledge, Esq., 3rd November 1878.

*o.* The skin and the skeleton of an adult male. The fore-arms are bent, although both are healthy hard bones. Presented by the Zoological Gardens, 17th March 1877.

*p.* The skeleton of an adult male. Purchased, 1865.

*q.* The skeleton of an adult male. Purchased, 1866.

*r.* The skeleton of an adult male. Purchased, 6th August 1866.

*s.* The skeleton of an adolescent male. Purchased, 17th September 1866.

*t.* The skull of an adolescent male. Purchased, 18th September 1866.

*u.* The skull of an adult male. No history.

*v.* The skeleton of a young male: 19 caudal vertebrae. Purchased, 27th December 1867.

*w.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 6th July 1869.

*x.* The skeleton of a young female. Presented by Wm. Rutledge, Esq., 5th August 1869.

*y.* The skeleton of an adolescent female. No history.

*z.* The skeleton of an adult male. No history.

*aa.* A skull. No history.

*bb.* The skull of an adolescent female. No history.

#### 45. *Macacus arctoides*.

*Macacus speciosus*, *F. Cuv., Hist. Nat. des Mammif.* Fevr. 1825, livr<sup>n</sup>. xlvii.

*Macacus arctoides*, *Is. Geoff. St.-Hil., Mag. de Zool.* 1833, cl. i, pl. ii (adult); *Anderson, Anat. and Zool. Resch.* 1878, p. 45, pls. i, ii.

*Macacus maurus*, *Is. Geoff. St.-Hil. Voy. de Bélanger, Zool.* 1834, p. 61.

*Papio melanotus*, *Ogilby, Proc. Zool. Soc.* 1839, p. 31.

*Cynopithecus speciosus*, *Lesson, Sp. des Mammif.* 1840, p. 101.

*Inuus* (*Maimon*) *arctoides*, *Wagner, Schreber. Säugeth. Suppl. bd.* 1, 1840, p. 146.

? *Macacus ursinus*, *Gervais, Hist. Nat. des Mammif.* 1854, p. 93.

*Inuus* (*Inuus*) *arctoides*, *Wagner, Schreber, Säugeth. Suppl. bd. v*, 1855, p. 57.

*Pithecus* (*Macacus*) *arctoides*, *Dahlbom, Stud. Zool. Fam. Reg. An.* 1856, pp. 116, 118.

*Pithecus arctoides*, *Blainville, Ostéogr. Mamm. t. i, p. 44, 1839-64, atlas ii, pl. vii (skull).*



*Macacus tibetanus*, A. M. Edwards, *Comptes Rendus*, Février 14, 1870, vol. lxx, p. 341; *Rech. des Mammif.* 1868-74, p. 244, pls. xxxiv et xxxv.

*Macacus melanotus*, Gray, *Cat. Monkeys and Lemurs*, B. M., 1870, p. 29.

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*Inuus speciosus*, Blyth, *Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 6.

*Hab.* High country of Cochin China, north-west to Yunnan and Assam, and to Eastern Tibet (Moupin).

45a. The skin, skull, and bones of the trunk of a fine adult male. In life this animal was a dark rich brown, compact, powerful monkey, with rather short limbs, intensely scarlet face, rather long muzzle, rudimentary tail, short radiating hair on the forehead, and long hair on the rest of the head falling forwards over the forehead, the hair before the ears and behind the cheeks being also directed anteriorly; the hair on the neck especially long and also on the shoulders,  $4\frac{1}{2}$  inches to 3 inches on the hinder half of the body; the colour darkest on the head and neck, but a decided reddish tinge on the hinder half of the body and external to the callosities; the latter and the huge scrotum and much-spined penis were rich scarlet in life; the upper surface of the hands and feet tend to black; under parts pale rufous brown; the hair more or less annulated, the annulations being especially numerous on the long hairs of the anterior parts. The skull has the general features of the skull of *M. nemestrinus*, but with a less powerful and considerably shorter muzzle. Kakhyen Hills; Bhamo, Upper Burma. Presented to the Zoological Gardens by Dr. J. Anderson.

b. A stuffed young male, its skeleton and its entire viscera preserved in alcohol: dark brown, more or less blotched with blackish; hair laterally divided on the forehead and radiating on the crown; ears with long hair on the inner aspect, projecting a long way external to their margins. The type of *M. brunneus*, Anderson, *Proc. Zool. Soc. Lond.* 1871, p. 628. Kakhyen Hills, to the east of Bhamo, Upper Burma. Presented by Dr. J. Anderson, 4th December 1872.

c. A young male, in alcohol: brown, but with the sides of the head yellowish, said to have been procured at Sadiya, Assam. Presented by Dr. J. Anderson, 30th June 1876.

d. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 19th October 1878.

*m.* The skin and skull of a young female: dull fuliginous brown; black on the head and from behind the shoulders along the middle of the back. Presented by O. L. Fraser, Esq., 29th April 1876.

*n.* The skin, skull, and the bones of the trunk of an adult male. Presented by Wm. Rutledge, Esq., 3rd November 1878.

*o.* The skin and the skeleton of an adult male. The fore-arms are bent, although both are healthy hard bones. Presented by the Zoological Gardens, 17th March 1877.

*p.* The skeleton of an adult male. Purchased, 1865.

*q.* The skeleton of an adult male. Purchased, 1866.

*r.* The skeleton of an adult male. Purchased, 6th August 1866.

*s.* The skeleton of an adolescent male. Purchased, 17th September 1866.

*t.* The skull of an adolescent male. Purchased, 18th September 1866.

*u.* The skull of an adult male. No history.

*v.* The skeleton of a young male: 19 caudal vertebræ. Purchased, 27th December 1867.

*w.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 6th July 1869.

*x.* The skeleton of a young female. Presented by Wm. Rutledge, Esq., 5th August 1869.

*y.* The skeleton of an adolescent female. No history.

*z.* The skeleton of an adult male. No history.

*aa.* A skull. No history.

*bb.* The skull of an adolescent female. No history.

#### 45. *Macacus arctoides*.

*Macacus speciosus*, *F. Cuv., Hist. Nat. des Mammif.* Fevr. 1825, livr<sup>n</sup>. xlvii.

*Macacus arctoides*, *Is. Geoff. St.-Hil., Mag. de Zool.* 1833, cl. i, pl. ii (adult); *Anderson, Anat. and Zool. Resch.* 1878, p. 45, pls. i, ii.

*Macacus maurus*, *Is. Geoff. St.-Hil. Voy. de Bélanger, Zool.* 1834, p. 61.

*Papio melanotus*, *Ogilby, Proc. Zool. Soc.* 1839, p. 31.

*Cynopithecus speciosus*, *Lesson, Sp. des Mammif.* 1840, p. 101.

*Inuus* (Maimon) *arctoides*,\* *Wagner, Schreber. Säugeth. Suppl. bd.* 1, 1840, p. 146.

† *Macacus ursinus*, *Gervais, Hist. Nat. des Mammif.* 1854, p. 93.

*Inuus* (*Inuus*) *arctoides*, *Wagner, Schreber, Säugeth. Suppl. bd. v.* 1855, p. 57.

*Pithecus* (*Macacus*) *arctoides*, *Dahlbom, Stud. Zool. Fam. Reg. An.* 1856, pp. 116, 118.

*Pithecus arctoides*, *Blainville, Ostéogr. Mamm. t. i, p. 44, 1839-64, atlas ii, pl. vii (skull).*



*Macacus tibetanus*, A. M. Edwards, *Comptes Rendus*, Février 14, 1870, vol. lxx, p. 341; *Rech. des Mammif.* 1868-74, p. 244, pls. xxxiv et xxxv.

*Macacus melanotus*, Gray, *Cat. Monkeys and Lemurs*, B. M., 1870, p. 29.

*Macacus brunneus*, Anderson, *Proc. Zool. Soc.* 1871, p. 628; 1872, pp. 203-212, pl. xii (juv.); 1874, p. 652.

*Inuus speciosus*, Blyth, *Journ. As. Soc. Beng.* vol. xlv, 1875, ex. no. p. 6.

*Hab.* High country of Cochin China, north-west to Yunnan and Assam, and to Eastern Tibet (Moupin).

45a. The skin, skull, and bones of the trunk of a fine adult male. In life this animal was a dark rich brown, compact, powerful monkey, with rather short limbs, intensely scarlet face, rather long muzzle, rudimentary tail, short radiating hair on the forehead, and long hair on the rest of the head falling forwards over the forehead, the hair before the ears and behind the cheeks being also directed anteriorly; the hair on the neck especially long and also on the shoulders.  $4\frac{1}{2}$  inches to 3 inches on the hinder half of the body; the colour darkest on the head and neck, but a decided reddish tinge on the hinder half of the body and external to the callosities; the latter and the huge scrotum and much-spined penis were rich scarlet in life; the upper surface of the hands and feet tend to black; under parts pale rufous brown; the hair more or less annulated, the annulations being especially numerous on the long hairs of the anterior parts. The skull has the general features of the skull of *M. nemestrinus*, but with a less powerful and considerably shorter muzzle. Kakhyen Hills; Bhamo, Upper Burma. Presented to the Zoological Gardens by Dr. J. Anderson.

b. A stuffed young male, its skeleton and its entire viscera preserved in alcohol: dark brown, more or less blotched with blackish; hair laterally divided on the forehead and radiating on the crown; ears with long hair on the inner aspect, projecting a long way external to their margins. The type of *M. brunneus*, Anderson, *Proc. Zool. Soc. Lond.* 1871, p. 628. Kakhyen Hills, to the east of Bhamo, Upper Burma. Presented by Dr. J. Anderson, 4th December 1872.

c. A young male, in alcohol: brown, but with the sides of the head yellowish, said to have been procured at Sadiya, Assam. Presented by Dr. J. Anderson, 30th June 1876.

d. A young male, in alcohol. Presented by Wm. Rutledge, Esq., 19th October 1878.



*e.* The skin and skeleton of a young female from Tipperah. Presented by the Zoological Gardens, 17th October 1878.

*f.* A young female, in alcohol. Purchased, 20th March 1879.

#### 46. *Macacus maurus*.

*Macacus maurus*, *F. Cuv., Hist. Nat. des Mamm.* 1823, Avril, livr<sup>n</sup>. xl; *Anderson, Anat. and Zool. Resch.* 1878, p. 80.

*Magus maurus*, *Lesson, Man. de Mamm.* 1827, p. 44.

*Simia cuvieri*, *Fischer, Syn. Mamm.* 1829, p. 30.

*Cynocephalus niger* (?) *Quoy & Gaimard, Voy. de l'Astrolabe Zool.* vol. i, 1830, p. 67.

*Macacus arcoides*, *Is. Geoff. St.-Hil., Zool. du Voyage de Bélanger*, 1834, p. 61 (*partim*).

*Macacus melanotus*, *Schinz (partim), Syn. Mamm.* bd. i, 1844, p. 59,

*Inuus maurus*, *Vrolik, Todd's Cyclop. Anat. & Phys.* 1852, vol. iv, p. 197.

*Macacus* (*Gymnopyga*) *inornatus*, *Gray, Proc. Zool. Soc.* 1866, p. 202, pl. xix.

*Hab.* North-West Borneo.

*46a.* A stuffed adolescent male, and its skull and bones of the trunk: brown, darkest on the forehead and on the hands and feet, which are darker than the body, but not black, and palest on the sides, back of the head and neck, which are pale yellowish-brown; tail very short; face and ears dusky black. Presented by Wm. Rutledge, Esq., 5th June 1871.

*b.* The skin, skull, and bones of the trunk of an adult male: dark ashy brown, paler on the head and sides of the neck, and palest on the back of the thighs, where the colour is ashy grey; face black; the skull has continuous superciliary ridges, and a very strong malo-temporal ridge; the upper canines have been either extracted or shed, but the canine eminences on the face remain; the bones of the trunk are much diseased, evidently affected by rickets, the pelvic bones being bent downwards to an extraordinary degree, also the lower margin of the scapula. This specimen lived long in confinement, notwithstanding these deformities. Presented by O. L. Fraser, Esq., 28th October 1880.

*c.* The skin, skull, and the bones of the trunk of an adult male: like the last, but slightly darker on the head; a ferine individual, showing supraorbital ridges, well-defined canine eminences, the muzzle being concave on each side from before the malar. Presented by Wm. Rutledge, Esq., 8th June 1881.

*d.* The skin, skull, and the bones of the trunk of an adult ferine male: like the last specimen. Presented by Wm. Rutledge, Esq., 20th August 1880.

*e.* The skin and skull of an adult female: like the preceding males; canines feeble, also their ridges. Presented by Wm. Rutledge, Esq., 4th June 1880.

*f.* The skin and skull of a nearly adult female: like the last. Presented by O. L. Fraser, Esq., 21st November 1880.

*g.* Skin and skull of an adult female: resembling preceding specimen. Presented by Wm. Rutledge, Esq., 2nd August 1880.

*h.* The skin and skull of a young male: pale brown, palest on the head and passing into dark brown on the hands and feet; skull with milk dentition. Presented by Wm. Rutledge, Esq., 4th July 1880.

*i.* Skeleton of a young male. Presented by Wm. Rutledge, Esq., 4th June 1880.

*j.* A young male, in alcohol. Presented by Wm. Rutledge, Esq., 20th May 1880.

#### 51. *Macacus ocreatus*.

*Papio ochreatus*, *Ogilby, Proc. Zool. Soc.* 1840, p. 56.

*Macacus fusco-ater*, *Schinz, Syn. Mamm.* vol. i, 1844, p. 58.

*Inuus (Inuus) fusco-ater*, *Wagner, Schreber, Säugeth.* Suppl. vol. v, 1855, p. 59.

*Macacus ocreatus*, *Sclater, Proc. Zool. Soc.* 1860, p. 420, pl. lxxxii;

*Anderson, Anat. and Zool. Resch.* 1878, p. 81.

*Macacus ochreatus*, *Blyth, Journ. As. Soc.* vol. xlv, 1875, ex. no. p. 7.

*Hab.* Celebes.

47*a.* A stuffed adolescent male and its skull, No. 16 of Blyth's Catalogue<sup>1</sup>: dark brown, except on the forearm from below the elbow, the hind leg from below the knee, the inside of the limbs, and the buttocks, which are grey; chest and belly brown, face black; a considerable bare area around the callosities; tail about 2 inches long. Presented by the Maharajah of Burdwan, 1858.

*b.* The skin, skull, and bones of the trunk of an adolescent male: upper surface glossy black brown; the front of the brachium and the outer surface of the limbs from the elbow and knee ashy grey, also the back of the thighs and the insides of the limbs; throat and chest also ashy grey; the rest of the under surface of the body dull black-brown, the hair on the head tending to form a crest on the vertex; hairs along the

<sup>1</sup> This specimen was marked No. (10 *Papio leucophaeus*) and is evidently, from the way in which the skin has been prepared, a specimen from the Maharajah of Burdwan, but it is a male, whereas the Ape referred by Blyth to *P. leucophaeus* was a female.



upper lip and chin black; the upper milk canines are present, two permanent molars appearing; upper incisors large; a swelling over the region of the upper canines. Presented by W. Rutledge, Esq., 22nd February 1880.

*c.* The skin, skull, and bones of the trunk of an adolescent male: wholly black, with the exception of the back of the thighs, which are brownish grey; throat grey, and a tinge of grey down the inner aspect of the forearms and partially on the chest; a tendency to form a crest; face black; tail rudimentary.

The skull is distinguished by considerable rotundity and breadth across the orbits. *M. ocreatus* and *M. maurus* have a narrow interorbital region, and the facial (maxillary) portion of the skull is not raised over the canines as in *C. niger*; moreover, this species has a tendency to flattening of the suborbital maxillary area—a feature which is characteristic of the skull of *Cynopithecus niger*. The latter species, however, has a peculiar feature in the great narrowness across its orbits, the combined breadth of which is much less than the malar region: neither *M. ocreatus* nor *M. maurus* exhibits this feature. The nasals of this species are much smaller than those of *M. maurus*. Presented by the Zoological Gardens, 25th August 1878.

#### GENUS CYNOPITHECUS, Is. Geoff., 1835.

##### 48. *Cynopithecus niger*.

*Cynocephalus niger*, *Desmarest, Mamm.* 1822, Suppl. p. 534.

*Cynocephalus malayanus*, *Desmoulins, Dict. Class. d'Hist. Nat.* t. v, 1824, p. 262.

*Papio niger*, *Griffith, An. Kingd.* vol. v (1847), p. 23; *Temminck, Poss. Néerland dans l'Inde Archip.* t. iii, 1847, p. 111.

*Macacus maurus* (P), *Quoy & Gaimard, Voy. de l'Astrolabe Zool.* t. i, 1831, p. 67.

*Macacus niger*, *Waterhouse, Cat. Mamm. Zool. Soc. Lond. Mus.* 1838, 2nd ed., p. 8.

*Inuus* (Maimon) *niger*, *Wagner, Schreber, Säugeth.* Suppl. bd. i, 1840, p. 147.

*Cynopithecus niger*, *Is. Geoff. St.-Hil., Zool. du Voy. de Bélanger*, 1834, p. 66.

*Cynocephalus* (*Cynopithecus*) *niger*, *Wagner, Schreber, Säugeth.* Suppl. bd. v, 1855, p. 61.

*Hab.* Celebes.

48a. A stuffed adult female, and skull: tail a mere knob. Presented by Wm. Rutledge, Esq., 28th September 1871.



*b.* A stuffed adult female, the bones of the trunk and the viscera in alcohol: tail half an inch long. Presented by Wm. Rutledge, Esq., 16th January 1872.

*c.* A stuffed adult female: tail a mere knob. Purchased, 12th January 1870.

*d.* A stuffed half-grown female: tail about half an inch long. Presented by Wm. Rutledge, Esq., 28th February 1871.

*e.* A stuffed young female. Presented by Wm. Rutledge, Esq., 11th April 1871.

*f.* The skin of a young female. Presented by Wm. Rutledge, Esq., 5th June 1871.

*g.* The skin, skull, and bones of the trunk of an adult male: the skull is very large and has enormous canines, with a very prominent canine eminence; the orbits are backwardly thrown, the facial portion of the skull elongated, forwardly projected, flat in front and laterally perpendicular and concave; the malar at its junction with the maxillary is swollen, and the nasal aperture is nearly as large as one half of an orbit. Presented by the Zoological Gardens, 9th August 1880.

*h.* The skin and skull of a young male: brownish-black trunk, passing into black on the limbs and head; the back of the thighs with a faint trace of grey. Presented by W. Rutledge, Esq., 8th September 1880.

*i.* The skeleton of an adult female. Presented by Wm. Rutledge, Esq., 9th January 1871.

*j.* The skull of an adolescent female. Presented by Wm. Rutledge, Esq., 11th February 1871.

*k.* The skeleton of an adolescent male. Presented by Wm. Rutledge, Esq., 3rd August 1871.

*l.* The skeleton of a young male. Presented by Wm. Rutledge, Esq., 7th December 1871.

*m.* The ligamentary skeleton of an adult female. Presented by Wm. Rutledge, Esq., 29th October 1871.

*n.* The skeleton of a very young female. Presented by Wm. Rutledge, Esq., 13th January 1872.

*o.* The skeleton of a young male. Presented by Wm. Rutledge, Esq., 3rd June 1872.

*p.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 5th September 1875.

*q.* The scapulæ, clavicles, pelvis, ribs, and vertebræ, and the viscera in alcohol of a young female. Presented by Wm. Rutledge, Esq., 13th December 1871.

r. The mounted skeleton of an adult female. Presented by Wm. Rutledge, Esq., 10th May 1871.

### III.—SUB-FAMILY CYNOCEPHALINÆ.

#### GENUS CYNOCEPHALUS, Brisson, 1756.

##### 49. *Cynocephalus hamadryas*.

- Tartarin, *F. Cuv., Hist. Nat. des Mammif.* livr<sup>n</sup>. v, Avril, 1819.  
*Simia hamadryas*, Linn., *Syst. Nat.*, 12th ed., 1766, p. 36; Schreber, *Säugeth.* bd. i (1774), p. 82, pl. x.  
*Simia aegyptica*, Hasselquist, *Reise nach Palaest.* 1762-68, p. 189.  
*Papio hamadryas*, Geoff. *St.-Hil., Ann. du Mus.* t. xix, 1812, p. 103.  
*Cynocephalus thoth*, Ogilby, *Proc. Zool. Soc. Lond.* 1843, p. 11.  
*Hamadryas aegyptica*, Gray, *Cat. Monkeys & Lemurs*, B. M., 1870, p. 34.

*Hab.* Abyssinia and Arabia.

- 49a. A stuffed adult male. Purchased, 6th October 1866.  
 b. The head of an adolescent male. Purchased, 29th January 1867.  
 c. The skin of an adult male. Hadoda, near Annesley Bay, Abyssinia. W. T. Blanford, Esq. Abyssinian Expedition, 1868.  
 d, e. Two skulls of adult males. Lebka Valley, Abyssinia. W. T. Blanford, Esq. Abyssinian Expedition, 1868.  
 f. A stuffed young female, apparently this species. Purchased, 7th February 1870.  
 g. The skin of a young female. Presented by Wm. Rutledge, Esq., 11th March 1877.  
 h. The skin, skull, and scapulæ of an adolescent male. These bones are quite light and very friable, and the scapula is thrown into folds as if it had been a piece of papier-mâché. This diseased condition of the bones is not unfrequently observed among monkeys reared from an early age in captivity. Purchased, 5th January 1878.  
 i. The skeleton of an adult male. Purchased, 6th January 1880.  
 j. A stuffed young male and its skull, marked No. 16A of Blyth's Catalogue, which is *Macacus assamensis*, McClelland, but in the Catalogue the species stands with a point of interrogation. Presented by the Maharajah of Burdwan, 1848.



50. *Cynocephalus doguera*.

*Cynocephalus babouin*, Rüppell, *Neue Wirbelthiere*, 1835, p. 7, *partim* (*nec auctorum*).

*Cynocephalus doguera*, Pucheran et Schimper, *Rev. et Mag. de Zool.* 1856, p. 96, et 1857, p. 250.

*Cynocephalus porcarius*, Fitzinger, *Sitzgsber. Ak. Wiss. Wien*, 1866, p. 542.

*Papio doguera*, Schlegel, *Mus. de Pays-Bas Simia*, 1876, p. 126.

*Hab.* Abyssinia.

50a. A stuffed fully adult male, and the bones of the trunk : uniform yellowish olive on the whiskers and over all the body, above and below, except on the hands and feet, which are black, or nearly so ; hair long (6 inches) and coarse on the front part of the body, basal portion (2 inches) ashy grey, the remainder banded nine times with orange and black, the first and last band the narrowest ; 12 ribs ; 25 caudal vertebræ. Purchased, 8th January 1870.

b. The skin of an adult male, its skull, and the bones of the trunk. Presented by Wm. Rutledge, Esq., 14th June 1876.

c. The skin and skeleton of an adult female : like the male, but smaller, and the feet uniform with the body. Presented by Wm. Rutledge, Esq., 30th June 1876.

d. The flat skin and skeleton of an adult. Presented by Wm. Rutledge, Esq., 15th August 1876.

51. *Cynocephalus porcarius*.

*Chacma*, F. Cuv., *Nat. Hist. des Mammif.* livr<sup>a</sup>. vii, Juin 1819.

*Simia porcaria*, Bodd., *Natur.* livr<sup>a</sup>. 22, p. 1, pl. 1.

*Simia sphingiola*, Hermann, *Obs. Zool.* vol. i (1804), p. 2.

*Papio porcarius*, Geoff. St.-Hil., *Ann. du Mus.* vol. xix (1812), p. 102.

*Cynocephalus ursinus*, Schinz, *Syn. Mamm.* vol. i, 1844, p. 64.

*Cynocephalus porcarius*, Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 6.

*Hab.* South Africa.

51a. A stuffed adult male, No. 11A of Blyth's Catalogue. Presented by E. L. Layard, Esq., Cape Town Museum, 1859.

b. A stuffed young male and its skull ; No. 11B of Blyth's Catalogue. Purchased, 1846.

c. The skin, skull, and bones of the trunk of an adolescent female. Although this animal was far from being adult, it had huge swellings around the vaginal orifice while alive. The bones of the skull are enormously thickened and heavy, but those of the face are softened. This animal lived in



the Zoological Gardens for some years and during that period appeared quite healthy. Presented by the Zoological Gardens, 29th October 1880.

*d.* A newly born male in alcohol: a hybrid between this species and *Macacus nemestrinus*. Presented by Raja Rajendra Mullick, Bahadur, 1862.

#### 52. *Cynocephalus maimon*.

Le Mandrill, *Audebert, Nat. Hist. des Singes*, 1797, fam. ii, sect. 2, fig.

1; *F. Cuv., Hist. Nat. des Mammif.* 1821; 1824, liv<sup>res</sup> xxix et xli.

*Simia maimon*, *Linn., Syst. Nat.* 1766, p. 35.

*Papio mormon*, *Geoff. St.-Hil., Ann. du Mus.* 1812, t. xix, p. 104.

*Mormon maimon*, *Gray, Cat. Monkeys & Lemurs, B. M.* 1870, p. 36.

*Papio maimon*, *Schlegel, Mus. d'Hist. Nat. des Pays-Bas*, 1876, livr<sup>e</sup>. 12, Simie, p. 130; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 6.

*Hab.* Western Africa.

52*a.* A stuffed adult male, No. 9A of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1858.

*b.* A stuffed adult female, No. 9B of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1858.

## II.—SUB-ORDER PLATYRRHINI.

### I.—FAMILY CEBIDÆ.

GENUS MYCETES, Illiger, 1811.

#### 53. *Mycetes ursinus*.

*Simia ursina*, *Humb., Recueil d'Observ. de Zool.* 1811-14, p. 329, fig. 30.

*Stentor ursinus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 108.

*Mycetes ursinus*, *Kuhl, Beitr.* 1820, p. 29.

*Hab.* Brazil.

53*a.* The skin of an adult male: yellowish on the dorsal surface and otherwise brown throughout. By exchange, 21st January 1879.

#### 54. *Mycetes seniculus*.

*Alouate*, *Buffon, Hist. Nat.* vol. xv, 1767, p. 5; Suppl., t. vii, 1789,

pl. 25; *Audebert, Hist. Nat. des Singes*, 1797, fam. 5, sect. 1, fig. 1.

*Simia seniculus*, *Linn., Hist. Nat.* 12th ed. 1766, p. 37.

*Stentor seniculus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 107.

*Mycetes seniculus*, Kuhl, *Beitr.* 1820, p. 28.

*Mycetes stramineus*, Spix (nec Geoffroy), *Sim. Brazil*, p. 45, pl. 31.

*Stentor chrysurus*, Is. Geoff., *Mem. du Mus.* t. xvii, 1828, p. 166.

*Mycetes laniger*, Gray, *Ann. & Mag. Nat. Hist.* vol. xvi, 1845, p. 219.

*Mycetes auratus*, Gray, *Ann. & Mag. Nat. Hist.* op. cit., p. 220.

*Hab.* Brazil, Guiana, and Bolivia.

54a. The skin of an adult female: reddish chestnut, golden yellow on the dorsal surface, from the shoulders to the root of the tail. By exchange, 21st January 1879.

#### 55. *Mycetes palliatus*.

*Mycetes palliatus*, Gray, *Proc. Zool. Soc. Lond.* 1848, p. 138, pl. 6;  
*Sclater*, op. cit. 1872, p. 7.

*Hab.* Nicaragua.

55a. The skin of an adult female: black throughout, with a few silvery hairs from the axilla along the side. Panama. By exchange, 21st January 1879.

### GENUS ATELES, Geoff., 1806.

#### 56. *Ateles ater*.

*Ateles ater*, F. Cuv., *Hist. Nat. des Mammif.* livr<sup>n</sup>. xxxix, Mars, 1823.

*Hab.* Peru, between 2° and 14° S. Lat.

56a. The skin of an adult female. Brazil. By exchange, 21st January 1879.

#### 57. *Ateles paniscus*.

Le Coaita, Buffon, *Hist. Nat.* vol. xv, 1767, p. 25, pl. 1.

*Simia paniscus*, Linn. Gmelin, *Syst. Nat.* 1788, p. 33.

*Ateles paniscus*, Geoff. St.-Hil., *Ann. du Mus.* t. vii, p. 270.

*Hab.* Guiana, Lower and Upper Amazon Valley, Rio Negro, banks of the Madeira, &c.

57a. The skin of an adult male. By exchange, 21st January 1879.

#### 58. *Ateles geoffroyi*.

*Ateles geoffroyi*, Kuhl, *Beitr.* 1820, p. 26.

*Ateles melanocephalus*, Desm., *Mamm.* 1820, p. 76; *Sclater*, *Proc. Zool. Soc.* 1871, p. 226, pl. xv et fig. skull; op. cit. 1875, p. 419, pls. 48 & 49.

*Ateles belzebuth* var. *trianguligera*, *Weinland, Zool. Garten*, Bd. iii, 1862, pl. 207.

*Ateles melanochir* et *hybridus*, et *A. frontatus*, *A. ornatus* et *A. albifrons*, *Gray, Cat. Monkeys & Lemurs, B. M.*, pp. 43, 44, 1870.

*Ateles variegatus* et *Eriodis frontatus* v. *Frantzius, Wiegmann, Archiv.* vol. 35, part 1, 1869, pp. 257, 258.

*Hab.* Central America, Southern Mexico to Verragua.

58a. The skin of an adult female: pale greyish-yellow, with a black forehead, hands, feet, and knees; with blackish under the antibrachium. Central America. By exchange, 21st January 1879.

b. The skin of an adult: black above, with an intermixture of grey hairs, passing into yellowish grey towards the rump; under surface greyish yellow, golden on the insides of the thighs. By exchange, 21st January 1879.

c. The skin, skeleton, and the viscera in alcohol of an adolescent female: black, with a few yellowish hairs scattered throughout. This skull has three *ossa triquetra*, a large one between the frontal and parietals, and two smaller ones between these latter bones and the occipital. Presented by Wm. Rutledge, Esq., 18th August 1878.

#### 59. *Ateles chuya*.

*Ateles chuya*, *Schlegel, Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 175, et syn.

*Hab.* North-Eastern Peru, Ecuador and the mountains of Guiana.

59a. The skin of an adult male: black on the upper surface and along the outside of the humerus and the first half of the tail; outer side of the thigh blackish, with an intermixture of yellow; lower half of limbs yellowish, with intermixed black hairs; hands and feet yellowish, with intermixed black hairs; under surface of body yellowish; forehead golden yellow; ear black; whiskers and hairs on mouth white; eyebrows and hairs on the rest of the face black. By exchange, 21st January 1879.

### GENUS CEBUS, Erxleben, 1777.

#### 60. *Cebus flavus*.

*Simia flava*, *Schreber, Säugeth.*, pl. 31B.

*Cebus flavus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 112.

*Cebus fulvus*, *Desm., Mamm.* 1820, p. 83.

*Cebus pallidus*, *Gray, Cat. Monkeys & Lemurs, B. M.*, 1870, p. 49.



*Hab.* Brazil and Bolivia.

60*a*. The skin of an adult male: pale brown, passing into black on the head and becoming paler on the fore limbs, and darker on the hands and feet, and on the upper surface of the tail; sides of the face greyish; under surface greyish, with a tinge of yellow. By exchange, 21st January 1879.

#### 61. *Cebus capucinus*.

Le Sajou mâle, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>e</sup>. xii, Novr. 1819.  
*Cebus capucinus*, *Geoff. St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 111.

*Hab.* Guiana.

61*a*. The skeleton of an adult male. Presented by the Zoological Gardens, 15th October 1880.

#### 62. *Cebus hypoleucus*.

*Simia capucina* var. *a*, *Audebert*, *Hist. des Singes et Makis*, 1794, fam. 5, sect. ii, fig. 4.

*Simia hypoleuca*, *Humb.*, *Rec. d'Obs. de Zool.* 1811-14, p. 336.

*Cebus hypoleucus*, *Geoff. St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. iii;  
*F. Cuv.*, *Hist. Nat. des Mamm.* livr<sup>e</sup>. xvi, Mai 1820.

*Hab.* Guiana.

62*a*. The skin of an adult male: black above; forehead, side of face, throat, chest, and front of shoulders yellowish white; belly pale brown. By exchange, 21st January 1879.

*b*. The skin and skeleton of a female. Purchased, 16th December 1878.

*c*. The skin and skull of a young male. Purchased, 23rd December 1879.

*d*. The skin, skull, and the bones of the trunk of a young male. Purchased, 27th November 1879.

### GENUS NYCTIPITHECUS, Spix, 1823.

#### 63. *Nyctipithecus felinus*.

*Nyctipithecus felinus*, *Spix, Sim. et Vesper Brazil*, 1823 p. 24, pl. 18.

*Hab.* Bolivia, Paraguay, and Argentine Republic.

63*a*. An adult in alcohol. Presented by Wm. Rutledge, Esq., 16th September 1880.

## GENUS PITHECIA, Desmarest, 1804.

64. *Pithecia nocturna*.

- Simia pithecia*, Linn., *Syst. Nat.* 1766, p. 40; Schreber, *Säugeth.* Bd. i, 1774, p. 125, pl. xxxii.  
*Pithecia nocturna et adusta*, Illiger, *Abhandl. der Berlin Akad.* 1804-11, p. 107.  
*Pithecia rufiventer et leucocephala*, Geoff. *St.-Hil.*, t. xix, pp. 116-17, 1812.  
*Pithecia rufiventer, adusta, rufibarbata, et ochrocephala*, Kuhl, *Beitr.* 1820, pp. 43, 44.  
*Pithecia capillamentosa*, Spix, *Sim. et Vesper Brazil*, 1823, p. 16, pl. 11.  
*Pithecia pogonias*, Gray, *Zool. Sulph.* p. 13, pl. 2.  
*Pithecia chrysocephala*, Is. Geoff., *Cat. des Mammif.* 1851, p. 55.

*Hab.* Guiana.

64a. The skin of an adult female: brownish black, the hairs with a subterminal white band; under surface rufous; moustache yellowish. Eriquito River, British Guiana. By exchange, 21st January 1879.

65. *Pithecia satanas*.

- Couxio, Humb., *Rec. d'Obs. Zool.* 1811, p. 314, pl. 27.  
*Cebus satanas*, Hoffmansegg, *Ges. Naturforscher*, Bd. x, p. 93, 1807.  
*Pithecia satanas*, Geoff. *St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 115;  
 Slater, *Proc. Zool. Soc.* 1864, p. 712, pl. 41.  
*Chiropotes ater*, Gray, *Cat. Monkeys & Lemurs*, B. M., 1870, p. 61.

*Hab.* Lower Amazon; near Pará, British Guiana.

65a. An adult male, in alcohol. Presented by Wm. Rutledge, Esq., 13th August 1879.

## GENUS CHRYSOTHRIX, Kaup, 1835.

66. *Chrysothrix sciurea*.

- Le Saimiri, Audebert, *Hist. Nat. des Singes et Makis*, fam. 5, sect. 2, pl. 7, 1797.  
*Simia sciurea*, Linn., *Syst. Nat.* 12th ed., 1766, p. 43; Schreber, *Säugeth.*, pl. xxx.  
*Callithrix sciureus*, Geoff. *St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 113.  
*Chrysothrix sciurea*, Wagner, Schreber, *Säugeth.* Suppl. Bd. v, 1855, p. 120, tab. 9.  
*Chrysothrix sciureus*, Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 16.

*Hab.* Guiana and Brazil.

66a. A stuffed adult. No. 40A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1844.

b. The skull. No. 40B of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1844.

c. The skin and skeleton, and the viscera in alcohol of an adult male. Presented by O. L. Fraser, Esq., 30th October 1878.

d. Skin of an adult male. By exchange, 1st January 1879.

e. An adult in alcohol. Presented by Wm. Rutledge, Esq., 30th September 1879.

f. A young male in alcohol. Presented by Wm. Rutledge, Esq., 20th May 1879.

## II.—FAMILY HAPALIDÆ.

GENUS HAPALE, Kuhl, 1820.

### 67. *Hapale jacchus*.

*L'Onistiti*, Buffon, *Hist. Nat.* vol. xv, 1767, p. 96, pl. 14.

*Simia jacchus*, Linn., *Syst. Nat.* 12th ed., 1766, p. 40; Schreber, *Säugeth.* pl. 33.

*Hapale jacchus*, Illiger, *Prod. Syst. Mamm.* 1811, pp. 71, 72; Kuhl, *Beitr.* 1820, p. 46.

*Jacchus vulgaris*, Geoff. St.-Hil., *Ann. du Mus.* t. xix, p. 119; Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 16.

*Hub.* Brazil.

67a. A stuffed male and skull, No. 41A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1864.

b. The skull of a stuffed male, No. 41B of Blyth's Catalogue. Presented by E. Blyth, Esq., 1851.

c. A mounted adult male. Presented by Wm. Rutledge, Esq., 24th July 1873.

d. A mounted adult female. Presented by Wm. Rutledge, Esq., 24th July 1873.

e. A mounted adult female. Presented by Wm. Rutledge, Esq., 24th July 1873.

f. The skin, skull, and bones of the trunk of an adult male. Presented by Wm. Rutledge, Esq., 5th October 1876.

g & h. Two young in alcohol, born in Calcutta. Nos. 41E and F of Blyth's Catalogue. Presented by E. Blyth, Esq., 1851.

i. The skeleton of a female, No. 41C of Blyth's Catalogue. Presented by E. Blyth, Esq., 1852.

j. The skin and skull of a young female. Presented by Wm. Rutledge, Esq., 9th September 1872.



68. *Hapale penicillata*.

*Jacchus penicillatus*, *Ann. du Mus.* t. xix, 1812, p. 119.

*Jacchus vulgaris*, *Gray, Cat. Monkeys & Lemurs*, B. M., 1870, var. 3, p. 63.

*Hab.* Brazil.

68a. The skin of an adolescent male, its skull and viscera. Presented by Mr. H. Swaries, 15th January 1869.

b. A mounted adult female and its skull. Presented by Wm. Rutledge, Esq., 6th March 1871.

69. *Hapale pygmaea*.

*Jacchus pygmaeus*, *Spir, Sim. et Vesper Brazil*, 1823, p. 32, pl. 24, fig. 2.

*Hapale pygmaea*, *Is. Geoff. St.-Hil., Cat. Mamm.* 1851, p. 61.

*Cebuella pygmaea*, *Gray, Cat. Monkeys & Lemurs*, B. M., 1870, p. 64.

*Hab.* Eastern Peru.

69a. A mounted adult. By exchange, 21st January 1879.

70. *Hapale rosalia*.

*Le Marikina*, *Buffon, Nat. Hist.* t. xv, 1767, p. 108, pl. 16.

*Simia rosalia*, *Linn., Syst. Nat.* 12th ed. 1766, p. 41.

*Hapale rosalia*, *Illiger, Prod. Syst. Mamm.* 1811, p. 72.

*Midas rosalia*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, p. 121.

*Leontopithecus rosalia*, *Gray, Cat. Monkeys & Lemurs*, B. M., 1870, p. 65.

*Hab.* Brazil.

70a. The skin of an adult: pale golden yellow; rufous around the face and along the neck, on the under surface and the lower portion of the limbs, with the exception of the fore feet, which are black, with a tinge of rufous above, the hind feet being pale golden yellow; the tail slightly dusky. Brazil. By exchange, 21st January 1879.

b. A stuffed adult male, its skull and skeleton. Presented by Wm. Rutledge, Esq., 3rd November 1880.

c. The skeleton of an adult male. By exchange, 28th May 1880.

71. *Hapale cœdipus*.

*Le Pinche*, *Buffon, Hist. Nat.* t. xv, 1767, p. 114, pl. 17; *Audebert, Singes et Makis*, fam. 6, sect. ii, pl. 1; *F. Cuv., Nat. Hist. des Mammif.* livr<sup>n</sup>. lix, Janvier 1829.

*Titi de Carthagène*, *Humb., Rec. d'Obs. Zool.* 1811-14, p. 337.

*Simia œdipus*, Linn., *Syst. Nat.* 12th ed., 1766, p. 41; Schreber, *Säugeth.* pl. 34.

*Midas œdipus*, Geoff. St.-Hil., *Ann. du Mus.* t. xix, 1812, p. 122; *Cat. Mammif.* 1851, p. 62.

*Jacchus œdipus*, Desmarest, *Mamm.* 1820, p. 96.

*Œdipus titi*, Gray, *Cat. Monkeys & Lemurs*, B. M., 1870, p. 65.

*Hapale œdipus*, Schlegel, *Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 258.

*Hab.* Columbia.

71a. The skin of an adult: head, throat, and under parts white, also the lower half of the brachium, antibrachium, and thigh; upper half of the tail chestnut, lower half black: the remaining parts of the trunk brownish, with a greyish olive tint and an intermixture of black and chestnut, the latter on the sides of the neck and on the back of the thigh, the black occurring chiefly on the lower half of the trunk. By exchange, 21st January 1879.

b. The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 24th May 1879.

c. An adult male in alcohol. Presented by Wm. Rutledge, Esq., 13th September 1880.

d. The flat skin and skeleton of an adult female. Presented by Wm. Rutledge, Esq., 18th September 1880.

e. The skin and skull of an adult male. Presented by Wm. Rutledge, Esq., 28th October 1880.

## 72. *Hapale leucopus*.

*Hapale leucopus*, Günther, *Proc. Zool. Soc. Lond.* 1876, p. 743, pl. lxxii.

*Hab.* Columbia.

72a. The skin of an adult male: silvery grey above, with an intermixture of fuliginous, specially on the occiput, which is dark brown, and on the base of the tail, the tip of which is white; the lower half of the outside of the limbs silvery white; forehead and hairs of face short, sparse, and white; throat dusky fuliginous; chest and under parts rich rufous. Antioquia, U. S. of Columbia. By exchange, 21st January, 1879.

b. The skin of an adolescent. By exchange, 21st January 1871.

## 73. *Hapale ursula*.

Le Tamarin nègre, Buffon, *Hist. Nat. Suppl.* t. vii, p. 116, pl. 32; Audebert, *Hist. Nat. des Singes et Makis*, 1797, fam. vi, sect. ii, pl. 6; F. Cuv., *Hist. Nat. des Mammif.* livr. ix, Sept. 1819.

*Saguinus ursula*, Hoffm., *Mag. der Berl. Naturf. Freunde*, 1807, vol. x. p. 102.

*Midas ursulus*, Geoff. *St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 121.

*Jacchus ursulus*, Desmarest, *Mamm.* 1820, p. 94.

*Hapale ursula*, Wagner, Schreber, *Säugeth. Suppl.* Bd. i, 1840, p. 246.

*Hab.* Brazil.

73a. A stuffed nearly adult male, its skull and bones of the trunk: face and fur jet black, with the exception of the back, from the shoulders to the root of the tail, which is more or less transversely banded with ferruginous. In the skull there appears to be the permanent absence of the last molar on the right side. Presented by Wm. Rutledge, Esq., May 1879.

b. An adult female in alcohol: the back more or less banded with rufous. Presented by Wm. Rutledge, Esq., 14th May 1879.

## II.—ORDER PROSIMIÆ.

### 1.—FAMILY LEMURIDÆ.

#### 1.—SUB-FAMILY LEMURINÆ.

GENUS LEMUR, Linn., 1758.

#### 74. *Lemur catta*.

*Le Mococo*, Buffon, *Hist. Nat.* t. xiii, 1765, p. 184, pl. 22; *Audebert*, *Hist. Nat. des Makis*, fig. 4; *F. Cuv.*, *Nat. Hist. des Mammif.* livr<sup>n</sup>. v, Avril 1819.

*Lemur catta*, Linn., *Syst. Nat.* 1766, p. 45; *Geoff. St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 161; *Blyth*, *Cat. Mamm. As. Soc. Mus.* 1863, p. 17; *Gray*, *Cat. Monkeys & Lemurs*, *B. M.*, 1870, p. 72; *Schlegel*, *Mus. d'Hist. Nat. des Pays-Bas, Simiæ*, 1876, p. 314.

*Prosimia catta*, Lesson, *Sp. des Mammif.* 1840, p. 223.

*Hab.* Central part of Madagascar to Mouroundava on the west coast and Andrahoumbe on the east coast.—*Schlegel*.

74a. A stuffed male in bad condition, and its skull. No. 46A of Blyth's Catalogue. Madagascar. Presented by Dr. E. F. Kelaart, 1852.

b. The skin and skeleton of a male. Presented by Wm. Rutledge, Esq., 4th February 1876.



75. *Lemur varius*.

Le Vari, *Buffon, Hist. Nat.* t. xiii, 1765, p. 204, pl. 27 ♂; *Audebert, Nat. Hist. des Makis*, 1797, figs. 5 & 6; *F. Cuv., Nat. Hist. des Mammif.* livr<sup>n</sup>. xliii, Août, 1824.

*Lemur Macaco, Schreber, Säugeth.* Bd. i, p. 142, pl. xl, B (nec Linn.)

Maki roux, *F. Cuv., Nat. Hist. des Mammif.* Avril 1820, livr<sup>n</sup>. xv.

*Lemur macaco et ruber, Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 159.

*Lemur varius, Is. Geoffroy St.-Hil., Cat. des Mammif.* 1851, p. 71; *Schlegel, Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 301.

*Varecia varia et rubra, Gray, Proc. Zool. Soc.* 1863, p. 136.

*Hab.* North-East coast of Madagascar.

75a. A stuffed male. Purchased, January 1863.

b. A stuffed adult male. Presented by Wm. Rutledge, Esq., 14th January 1869.

c. A stuffed adult male. Presented by Wm. Rutledge, Esq., 28th January 1869.

d. The skeleton of a male. Presented by Wm. Rutledge, Esq., 18th January 1873.

e. A skeleton. No history.

f. A toothless skull. No. 42B of Blyth's Catalogue. No history.

g. The skull of No. 42A of Blyth's Catalogue.

76. *Lemur macaco*.

The Black Maucauco, *Edwards, Glean.* vol. v, pl. 217.

*Lemur macaco, Linn., Syst. Nat.* 1766, p. 44; *ex syn. Pet. et Brown, Schlegel, Mus. des Pays-Bas*, 1876, p. 302; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 16.

*Lemur niger, Geoff. St.-Hil., Ann. du Mus.* vol. xix, 1812, p. 159.

*Lemur leucomystax, Bartlett, Proc. Zool. Soc. Lond.* 1862, p. 347, pl. 41 ♀.

*Varecia nigra, Gray, Proc. Zool. Soc. Lond.* 1863, p. 136.

*Hab.* North-West coast of Madagascar.

76a. A stuffed adolescent male: wholly black. No. 45A of Blyth's Catalogue. Presented by Raja Rajendra Mullick, Bahadur, 1850.

b. A stuffed young animal, No. 45B of Blyth's Catalogue: the same as the last. Presented by Raja Rajendra Mullick, Bahadur, 1864.

c. The skin and skull of an adolescent male: wholly black. Purchased, 27th November 1879.

77. *Lemur albifrons*.

*Lemur albifrons*, *E. Geoff.*, *Mem. sur les Makis* (*Lemur*, *Linn.*) *Mag. Encyclopéd.* t. i, p. 20; *Ann. du Mus.* t. xix, 1812, p. 160; *Audebert*, *Hist. Nat. des Makis*, fig. 3; et *Schreber*, pl. xxxixD; *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>n</sup>. iii, 19 Fév. 1819, ♂ *nec* fig. ♀ *et juv.*; *Is. Geoff. St.-Hil.*, *Cat. des Mammif.* 1851, p. 72; *Blyth*, *Journ. As. Soc. Beng.* vol. xxvii, 1858, p. 274; *Cat. Mamm. As. Soc. Mus.* 1863, p. 17 (*partim*); *Schlegel*, *Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 310.

*Prosimia albifrons*, *Gray*, *Cat. Monkeys & Lemurs*, *B. M.*, 1870, p. 73.

*Hab.* North-East coast of Madagascar.

83a. A stuffed male in bad condition, and its skull. No. 44A of Blyth's Catalogue. Presented by the Maharajah of Burdwan, 1858.

78. *Lemur collaris*.

Grand Mongous, *Buffon*, *Nat. Hist.* Suppl. vol. vii, 1789, p. 118, pl. 33.

Le Mongous, *F. Cuv.*, *Hist. Nat. des Mammif.* livr<sup>n</sup>. ii, Janvier 1819.

Maki à front blanc, ♀ *et juv.* (*nec* ♂), *Hist. Nat. des Mammif.* livr<sup>n</sup>. iii, Fév. 1819.

Maki à front noir, *F. Cuv.*, *l. c.* livr<sup>n</sup>. xxx, Juillet 1821.

*Lemur collaris et fulvus*, *Geoff. St.-Hil.*, *Ann. du Mus.* vol. xix, 1812, p. 161.

*Lemur brunneus*, *Van der Hoeven Tijdschr.*, v. N. G. Bd. xi, 1844, p. 35.

*Lemur nigrifrons*, *Blyth*, *Cat. Mam. As. Soc. Mus.* 1863, p. 17.

*Prosimia melanocephala*, *Gray*, *Proc. Zool. Soc. Lond.* 1863, p. 137, pl. 18.

*Prosimia xanthomystax*, *Gray*, *Proc. Zool. Soc. Lond.* 1863, p. 138, pl. 17;

*Cat. Monkeys & Lemurs*, *B. M.*, 1870, p. 74.

*Lemur collaris*, *Schlegel*, *Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 306.

*Hab.* North-West coast of Madagascar.

78a. The skin of an adult male and its skull: corresponding to the *Maki à front noir* of F. Cuv. Presented by Wm. Rutledge, Esq., 27th August 1880.

79. *Lemur nigrifrons*.

*Lemur simia-sciurus*, *Petiv.*, *Schreber*, *Säugeth.* pl. 42.

*Lemur nigrifrons*, *Geoff. St.-Hil.*, *Ann. du Mus.* t. xix, 1812, p. 160.

*Hab.* Madagascar.

79a. The skin and skull of an adult male: rather pale ashy grey throughout, above and below, except on the front of the head and around the ears, which is tinged with reddish yellow; the sides of the face external to one-half of the eyes are grey, but the rest is jet black, extending on to the forehead, but not reaching the vertex. Presented by the Zoological Gardens, Calcutta, 28th October 1879.

This Lemur seems closely allied to the *L. flavifrons*, Gray, Proc. Soc. Lond. 1867, p. 596, pl. 31.

#### 80. Lemur mongoz.

The Mongoz, *Edwards, Gleanings*, vol. v, p. 12, pl. 216.

Le Mongous *Audebert, Hist. Nat. des Makis*, 1797, fig. 1.

Lemur mongoz, *Linn., Syst. Nat.* 12th ed. 1766, p. 44; *Slater, Proc. Zool. Soc.* 1871, pl. 16, fig. 1 ♂, fig. 2 ♀.

Lemur albimanus, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 160.

Lemur nigrifrons, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 17.

*Hab.* West coast of Madagascar.

80a. A stuffed specimen and its skeleton, Nos. 43 A and B of Blyth's Catalogue: much faded, but apparently agreeing with the characters of the female. The ashy grey on the shoulder and fore limb is much faded. Presented by Raja Rajendra Mullick, Bahadur, 1851.

b. A stuffed skin of a female: like the preceding, but with less white below the ear, and much faded. No. 44B of Blyth's Catalogue, and the type of *L. flaviventer*, Blyth, Journ. As. Soc. Beng., vol. xxvii, p. 274, 1858. This specimen, however, does not differ specifically from the previous individual. Presented by the Maharajah of Burdwan, 1858.

c. The skin, skull, and bones of the trunk of an adult female. It differs from the previous specimens in having no white on the breast, throat, or sides of the face, all of these parts being dark ashy grey, except the chin, which is paler. Presented by Wm. Rutledge, Esq., 11th October 1880.

d. The skin of an adult male and its skull: the sides of the neck and of the face are rufous, front of face greyish. Purchased, 4th December 1880.

e. The skin of a young male and its skull: resembling c, but showing a tendency to rufous on the side of the neck; the face and forehead black. Presented by Wm. Rutledge, Esq., 17th August 1880.

## II.—SUB-FAMILY INDRISINÆ.

### GENUS PROPITHECUS, Lund, 1839.

#### 81. Propithecus diadema.

Propithecus diadema, *Bennet, Proc. Zool. Soc. Lond.* 1832, p. 20; *Alph. Milne Edwards & Alf. Grandidier, Hist. Phys. Nat. et Pol. Madagascar*, t. vi; *Hist. Nat. des Mammif.* t. i (1875), texte p. 296, pl. 1.



*Hab.* The great forests of the eastern portion of Madagascar.—*Schlegel*.

81a. The skin of an adult. By exchange with the British Museum, 6th January 1879.

b. The skin of an adult female: darker than the last specimen. Purchased, 21st January 1879.

c. The skeleton of an adult. By exchange with the British Museum, 21st January 1879.

#### GENUS INDRIS, Geoff., 1796.

##### 82. *Indris brevicaudatus*.

*Indris brevicaudatus*, *Geoff. St.-Hil., Mem. sur les Rapp. Nat. des Makis*, t. i *Magasin Encyclopéd.* 1796, p. 46; *Alph. Milne Edwards & Alf. Grandidier, Hist. Phys. Nat. et Pol. de Madagascar*, t. vi; *Hist. Nat. des Mammif.* t. i, texte p. 335, pls. xi, xii.

*Hab.* Forests on the eastern side of the great mountains, between the bay of Antongil to the north, and the river Masora to the south.—*Alph. Milne Edwards & Grandidier*.

82a. The skin of an adult female, of the variety described by Professor Peters as *Lichanotus mitratus*.<sup>1</sup> By exchange with the British Museum, 6th January 1879.

## II.—FAMILY NYCTICEBIDÆ.

### I.—SUB-FAMILY NYCTICEBINÆ.

#### GENUS NYCTICEBUS, Geoff., 1795.

##### 83. *Nycticebus tardigradus*.

Le paresseux pentadactyle du Bengale, *Vosmaer, Description* Amsterd., 1770, pl. vi.

Le Loris paresseux, *Audebert, Hist. des Singes et Makis*, 1797, fig. 1.

Lemur tardigradus, *Linn., Syst. Nat.* 12th ed. 1766, p. 44.

Stenops tardigradus, *Illiger, Prod. Syst. Mamm.* 1811, p. 73.

*Nycticebus bengalensis* et *javanicus*, *Geoff. St.-Hil., Ann. du Mus.* t. xix, 1812, p. 164.

*Nycticebus cinereus*, *A. M. Edwards, Nouv. Arch. du Mus.* t. iii, 1867; Bull. 1869, p. 11, pl. iii; *Anderson, Anat. & Zool. Resch.* 1878, p. 103.

*Nycticebus tardigradus*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 18; *Anderson, Anat. & Zool. Resch.* 1878, pp. 103 et seq.

<sup>1</sup> M. B. Akad. der Wiss. zu Berlin (1871), p. 360.

*Hab.* Assam and Eastern Bengal through Upper Burma and Arakan to Siam, and through the Malayan Peninsula to Sumatra and Java.

VAR. *cinerea*.

Large race inhabiting Assam, Sylhet, and Cachar, and ranging eastwards through Upper Burma (Bhamo) to Siam. Clear greyish ashy, or silvery grey on the head and neck, with only a trace of the head markings so distinct in the Javan race; the rest of the trunk greyish, but washed with brownish and tending to reddish brown on the hind quarters. Dorsal band rich dark brown, fading away on the vertex; upper incisors two to four.

83a. A stuffed adult female, and its skull, No. 47A of Blyth's Catalogue: one pair of upper incisors. Tipperah. Presented by F. Skipwith, Esq., 1846.

b. A stuffed young animal. Tipperah. Presented by F. Skipwith, Esq., 1846.

c. A stuffed adult. Tipperah. Presented by A. Grote, Esq., 28th July 1864.

d. A stuffed adult female and its skull: two pairs of upper incisors. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 17th August 1867.

e & f. A stuffed adult female and its young one. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 17th August 1867.

g. A stuffed young male. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 5th July 1868.

h. An adult male in alcohol. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 17th August 1867.

i. An adult male in alcohol and its skull: two pairs of incisors. Bhamo, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western China, 1875.

j. The skeleton of an adult male. Goálpára, Assam. Presented by Raja Pirthi Ram Chowdry, 5th July 1868.

k. The skulls, Nos. 47 A to C of Blyth's Catalogue.

l. The skeleton of a specimen from Goálpára, Assam. Presented by H. L. Houghton, Esq., 1868.

VAR. *malaiana*.

A smaller variety, darker than the preceding, without the marked silvery grey; brownish, with a rusty hue; indistinct head markings as compared with var. *javanica*; dorsal line well defined to lumbar region; upper incisors 2 to 4; skull

smaller than the skull of the previous race. Occurs in Eastern Bengal (Chittagong) and extends through Arakan to Malacca.

*m.* A stuffed adult male and its skull, Nos. 47 B to D of Blyth's Catalogue: two pairs of upper incisors. Malacca. Presented by the Rev. F. J. Lindstedt, 1846.

*n.* A stuffed adolescent and its skull, Nos. 47 B, E, and G of Blyth's Catalogue: two pairs of upper incisors. Malacca. Presented by the Rev. F. J. Lindstedt, 1846.

*o.* A stuffed adolescent: brownish, with a dusky fuliginous or dusky tinge. Probably Nos. 47 B F of Blyth's Catalogue. Presented by Mr. Bell, 1857.

*p.* A stuffed adolescent female: brownish fawn; hairs on the back white-tipped, and markings on the trunk moderately well defined; one pair of upper incisors. Presented by Wm. Rutledge, Esq., 7th July 1870.

*q.* A stuffed young male: dusky brown, tipped with white; dorsal line nearly black; two pairs of incisors. Presented by Wm. Rutledge, Esq., 12th March 1870.

*r.* The skin, skull, and bones of the trunk of an adult male: two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 3rd March 1877.

*s.* The skin, skull, and bones of the trunk of an adult male: two pairs of upper incisors. Penang. Presented by the Zoological Gardens, Calcutta, 26th May 1877.

*t.* The skin, skull, and bones of the trunk of an adolescent female: rufous brown. Presented by Wm. Rutledge, Esq., 13th January 1873.

*u.* The flat skin and skeleton of a male: like the last; head markings partially defined; two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 13th February 1875.

*v.* The flat skin and skeleton of an adult male: like the last; upper incisors wanting. Presented by Wm. Rutledge, Esq., 22nd November 1875.

*w.* The skin of an adolescent female: dark fawn-brown; dorsal line nearly black; one pair of upper incisors. Presented by Wm. Rutledge, Esq., 22nd March 1876.

*x.* The flat skin and skeleton of an adult male: like the last; two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 8th August 1876.

*y.* A skeleton: two pairs of upper incisors. Presented by Dr. J. Anderson, 1st December 1872.

*z.* The skeleton of a male: two pairs of upper incisors. Presented by Dr. J. Anderson, 1st December 1872.



*aa.* The skeleton of an adult male: two pairs of upper incisors. Presented by Dr. J. Anderson, 7th July 1873.

*bb.* The skeleton and flat skin of an adult male: two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 1st February 1875.

*cc.* Skeleton and flat skin of an adult: two pairs of upper incisors. Presented by Wm. Rutledge, Esq., 6th April 1877.

*dd.* The skeleton and flat skin of an adult male: no upper incisors. Presented by Wm. Rutledge, Esq., 25th April 1877.

*ee.* The skeleton of an adult male: two pairs of upper incisors. Purchased, 29th June 1869.

*ff.* The mounted skeleton of an adult: no history.

VAR. *javanica*.

About the same size as var. *malaiana*, but much paler, especially on the head, which has the brown bands from above the eyes and ears well defined, and united to the dorsal line, which, like the head bands, is rich brown.

*gg.* A stuffed adult and its skull, No. 47I of Blyth's Catalogue. Presented by the Batavian Society, 1845.

GENUS LORIS, Geoff., 1796.

84. *Loris gracilis*.

*Loris*, Buffon, *Nat. Hist.* vol. xiii (1765), p. 210, pl. 30.

Le Loris grêle, Audebert, *Hist. des Singes et Makis*, 1797, pl. ii.

*Loris gracilis*, Geoff. *St.-Hist., Ann. du Mus.* vol. xix, 1812, p. 163;

*Dalhbon*, *Stud. Zool.* 1856, p. 211, pl. ix; *Blyth, Cat. Mamm. As.*

*Soc. Mus.* 1863, p. 19.

*Stenops gracilis*, Kuhl, *Beitr.* 1820, p. 37.

*Nycticebus gracilis*, Schlegel, *Mus. d'Hist. Nat. des Pays-Bas*, 1876, p. 284.

*Hab.* Ceylon; Southern India; (?) Shan States east of British Burma.

*84a.* A stuffed specimen, No. 48A of Blyth's Catalogue. Presented by Sir Walter Elliot, 1843.

*b.* A stuffed specimen, No. 48B of Blyth's Catalogue. Presented by Sir Walter Elliot, 1843.

*c.* A stuffed young individual and its skull, Nos. 48 C and E of Blyth's Catalogue: with shorter limbs than *a* & *b*.<sup>1</sup> Presented by the Medical College, Calcutta, 1844.

<sup>1</sup> Blyth: *Journ. As. Soc. Beng.* vol. xvi, p. 736.

*d & e.* The skin, skull, and bones of the trunk of a shorter-limbed young animal, and the imperfect skeleton of another. Both were received alive from Rangoon, where they had been purchased from a Shan, who had stated that he had obtained them in the Shan States to the east of British Burma. The skulls are distinguished by having smaller orbits and narrower and more pointed muzzles than those of animals from Ceylon and India. Presented by Dr. J. Anderson, 1870.

*f.* The skin and skeleton of an adult male. Presented by Wm. Rutledge, Esq., 30th April 1875.

*g.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 21st July 1876.

*h.* The skeleton of an adult male. Ceylon. Presented by Dr. J. Anderson, 3rd February 1866.

*i.* The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 21st June 1874.

*j.* A skeleton. Coromandel Coast. Presented by Sir Walter Elliot, 1843.

## II.—SUB-FAMILY GALAGONINÆ.

### GENUS GALAGO, Geoff., 1796.

#### 85. *Galago senegalensis*.

Le Galago, *Audebert, Hist. Nat. des Singes, des Makis et des Galagos*, fig. 1.

Galago senegalensis, *Geoff., Rapp. Nat. des Makis, Magasin Encyclopéd.* vol. i, 1796, p. 20; *Schreber. Säugeth.* pl. xxxviii. B.; *Geoff. St.-Hil., Hist. Nat. des Mammif. livr.* xxii, Nov. 1820, plate.

Lemur galago, *Shaw, Nat. Hist.* vol. i, pt. i, 1800, p. 108.

Otolienus galago, *Illiger, Syst. Prod. Mamm.* 1811, p. 74.

Galago geoffroyi, *G. Fischer, Act. Soc. de Mosc.* vol. i, p. 25.

*Hab.* West Africa; Senegal; Gambia.—*Gray.*

85a. The skin and skull of an adult in bad condition. Asiatic Society's specimen. No history.

#### 86. *Galago garnetti*.

Otolienus garnetti, *Ogilby, Proc. Zool. Soc. Lond.* 1838, p. 6.

Otogale garnetti, *Gray, Proc. Zool. Soc. Lond.* 1863, p. 140.

Galago garnetti, *Selater, Proc. Zool. Soc. Lond.* 1864, p. 711.

*Hab.* Natal.

86a. The skin and skeleton of an adult male, both mounted.

Presented by His Excellency the Viceroy, Earl Northbrook,  
14th January 1875.

### III.—FAMILY TARSIDÆ.

#### I.—SUB-FAMILY TARSINÆ.

GENUS TARSIVS, E. Geoff., 1812.

##### 87. *Tarsius spectrum*.

*Lemur spectrum*, Pallas, *nov. spec., Quad. e Glir. ord.* 1778, p. 275, nt.  
*Tarsius spectrum*, Geoff. St.-Hil., *Ann. du Mus.* t. xix, 1812, p. 168;  
Dalbhom, *Stud. Zool.* 1856, p. 231, pl. xi.

*Hab.* Malayan Archipelago (Philippines, Celebes, Java, and Sumatra).

87a. A stuffed adult; tail imperfect. Locality unknown.  
(Horsfield.) From the India Museum, London. Presented by  
the Trustees of the British Museum, 13th April 1880.

### III.—ORDER CHIROPTERA.

#### I.—SUB-ORDER MEGACHIROPTERA.

#### I.—FAMILY PTEROPODIDÆ.

##### I.—GROUP PTEROPI.

GENUS PTEROPUS, Brisson, 1756.

##### 88. *Pteropus poliocephalus*.

*Pteropus poliocephalus*, Temm., *Monogr. Mammal.* t. ii, 1827, p. 179;  
Dobson, *Cat. Chiroptera*, B. M., 1878, p. 31.

*Hab.* Australia.

88a. A stuffed adult male, No. 50A of Blyth's Catalogue. Presented by the Sydney Institution, 1846.



89. *Pteropus rodricensis*.

*Pteropus rodricensis*, Dobson, *Cat. Chiropt. B. M.*, 1878, p. 36.

*Hab.* Island of Rodriguez.

89*a*. The skin and skull of an adult. Island of Rodriguez. Presented by J. Caldwell, Esq., 4th November 1878.

*b*. The skin and skull of an adult. Island of Rodriguez. Presented by J. Caldwell, Esq., 4th November 1878.

*c*. An adult male in alcohol. Island of Rodriguez. By exchange with the British Museum, 6th September 1877.

*d* & *e*. Two skulls, one of an adult and the other of a young animal. The former was found in a cave along with bones *Pezophaps solitarius*. Island of Rodriguez. Presented by J. Caldwell, Esq., 30th May 1881.

90. *Pteropus edulis*.

*Pteropus edulis*, Geoffroy, *Ann. du Mus.* t. xv, 1810, p. 92; Dobson, *Cat. Chiroptera, B. M.*, 1878, p. 49.

*Hab.* Indo-Malayan Sub-region, extending also into some of the islands of the northern part of the Austro-Malayan Sub-region (Andaman and Nicobar Islands, Sumatra, Java, Borneo, Philippine Islands (Samar Island), Banda, Ternate, Timor).—Dobson.

90*a*. A stuffed adult female and its skull: the orbits of this skull are very perfect, the frontal, malar, and post-orbital processes having broadly united. No. 53A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*b*. A stuffed adolescent male and its skull. No. 53B of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*c*. A stuffed adolescent male and its skull, No. 53C of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*d*. The skin in bad condition and its skull, No. 53D of Blyth's Catalogue. Tenasserim. Presented by Dr. Helfer, 1839.

*e*. The skin of an adolescent. South Australia. By exchange with the Adelaide Museum, 1875.

*f*. The skin of an adolescent. South Australia. By exchange with the Adelaide Museum, 1875.

91. *Pteropus medius*.<sup>1</sup>

*Pteropus medius*, Temminck, *Monogr. Mammal.* t. i, p. 76; Dobson, *Cat. Chiroptera*, B. M., 1878, p. 51.

*Hab.* India, Ceylon, Arakan, and Burma.

91a. The skin of an adult female, No. 51A of Blyth's Catalogue. Calcutta, 1842-43.

b. The skin of an adult male, No. 51B of Blyth's Catalogue. Calcutta, 1842-43.

c. The skin of an adult male, No. 51C of Blyth's Catalogue. Calcutta, 1842-43.

d. The skin of an adult male, No. 51D of Blyth's Catalogue. Calcutta, 1842-43.

e. The skin of a young male, No. 51E of Blyth's Catalogue. Calcutta, 1842-43.

f. The skin of an adult female, No. 51F of Blyth's Catalogue. Calcutta, 1842-43.

g. A stuffed adult female and skull, No. 51G of Blyth's Catalogue. Calcutta, 1842-43.

h. The skin and skull of an adult male, No. 51I of Blyth's Catalogue. Mergui. Presented by Major Berdmore, 1855.

i. The skin of an adult male. Cachar. Museum Collector, 1868.

j. A stuffed adult male. Mánbhúm. Museum Collector, 1866.

<sup>1</sup> In my note-book I find the following observation regarding this species:—

"August 23rd, 1869.—This species has been flying for the last few days from the north to the south of the city, in immense numbers, immediately after sundown. The sky, from east to west, has been covered with them as far as the eye could reach, and all were flying, with an evident purpose, and making for some common feeding ground. Over a transverse area of 250 yards, as many as 70 bats passed overhead in one minute, and as they were spread over an area of great breadth and could be detected in the sky on both sides as far as could be seen, their numbers were very great, but yet they continued to pass overhead for about half an hour. This is not the first time I have observed this habit in this species; indeed, it was much more markedly seen in August 1864, while I was residing in the Botanical Gardens, Calcutta. The sky, immediately after sunset, was covered with this bat, travelling in a steady manner from west to east, and spread over a great expanse, all evidently making for one common goal, and travelling, as it were, like birds of passage with a steady purpose. I observed them, not only on one, but both sides of the river. But in the Botanical Garden I noticed that, whilst the great mass of bats passed on, a few were attracted by trees then in fruit and seemed to go no further. This continued for a number of successive nights, but I did not observe the bats returning."



k. The skin of an adult female. Mánbhúm. Museum Collector, 1866.

l. The skin of an adult male. Manipur. Presented by Lieut.-Colonel H. H. Godwin-Austen, 26th August 1873.

m. The skin and skull of an adult male. Chutia Nágpur. Presented by V. Ball, Esq., 21st November 1868.

n. The skeleton of an adult male. Presented by Wm. Rutledge, Esq., 16th August 1874.

o. An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 1866. The head of this specimen is figured in Dobson's Monograph of Asiatic Chiroptera, p. 18.

p. An adult female in alcohol. Calcutta. Presented by O. L. Fraser, Esq., 1872.

q. An adult female in alcohol. Pegu. Presented by W. Theobald, Esq., 1873.

r. An adult male in alcohol. Botanical Gardens, Calcutta. Presented by Dr. J. Anderson, 4th December 1872.

s. The mounted skeleton of an adult male. Calcutta. Presented by Dr. J. Anderson, 31st January 1866.

t. The skeleton of an adult male. Calcutta. Presented by Wm. Rutledge, Esq., 16th August 1873.

u. A skull. No history.

VAR. *assamensis*.

v. An adult male in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

92. *Pteropus nicobaricus*.

*Pteropus nicobaricus*, Fitzinger, Sitz. Wien. Akad. 1860, p. 389; Zelebor, Reise der öster. Freg. Novara, Säugeth. 1863, p. 11; Dobson, Journ. As. Soc. Beng. 1873, p. 198; Dobson, Cat. Chiropt. B. M. 1878, p. 54.

Hab. Andaman and Nicobar Islands; Java; Pulo; Condor.  
—Dobson.

92a. The skin and skull of an adolescent female. Java. No history.

b. A skin of a young female, No. 52A of Blyth's Catalogue. Type of *P. melanotus*, Blyth. Nicobar Islands. Presented by Captain Lewis, 1846.

c. The skin and skull of an adult female, No. 52B of Blyth's Catalogue. Type of *P. melanotus*, Blyth. Nicobar Islands. Presented by Captain Lewis, 1846.

d. The skin of an adult female. Black, but with the nape faintly chestnut. South Andamans. Presented by Lieut.-Colonel R. C. Tytler, 1864.



*e.* The skin and skull of an adult male: the same as the last. In the skull the frontal and post-orbital processes are nearly fully united. South Andamans. Presented by Lieut.-Colonel R. C. Tytler, 1864.

*f.* Skin and skull of an adolescent female: like the last two. South Nicobar. Presented by Lieut.-Colonel R. C. Tytler, 1864.

*g.* A mounted adult male and its skull. Nicobars. Bequeathed by Dr. F. Stoliczka, to the Asiatic Society of Bengal. 15th December 1875.

*h.* An adolescent male in alcohol. South Andamans. Presented by Lieut.-Colonel Tytler, 1863.

*i.* An adolescent female in alcohol. South Andamans. Presented by J. Homfray, Esq., 1871.

*j.* An adult male in alcohol. South Andamans. Presented by J. Homfray, Esq., 1871.

*k.* An adolescent female in alcohol. South Andamans. Presented by J. Homfray, Esq., 1871.

*l.* An adult female in alcohol. Andamans. Presented by G. E. Dobson, Esq., M.B., 30th May 1872.

*m* & *n.* An adolescent and a young female in alcohol. South Andamans. Bequeathed by Dr. F. Stoliczka, to the Asiatic Society of Bengal, 15th December 1875.

*o.* Skeleton of an adult male, skin in alcohol. Nicobar Islands. Presented by J. Homfray, Esq., 1871.

*p.* The skull (marked *Pt. javanicus*). Mergui. No history.

### 93. *Pteropus keraudrenii*.

*Pteropus keraudrenii* (*Quoy et Gaim.*) Dobson, *Cat. Chiropt. B. M.*, 1878, p. 63.

*Hab.* Polynesian Sub-region (except the Sandwich Islands, Gilbert's Group, Ellice's Group, and the Islands east of Samoa), apparently generally distributed, extending from the Mariana Islands to Savage Island, and from the New Hebrides to Samoa.—*Dobson*.

93*a.* An adult male in alcohol. Samoa. By exchange with the British Museum, 6th September 1877.

### GENUS CYNONYCTERIS, Peters, 1852.

#### 94. *Cynonycteris amplexicaudata*.

*Pteropus amplexicaudatus*, Geoff., *Ann. du Mus.* t. xv, 1810, p. 96; *Dobson, Cat. Chiroptera, B. M.*, 1878, p. 72.

*Hab.* From the Persian Gulf to the Philippine Islands; Bengal, Southern India, Ceylon, Burma, Celebes, Amboina, Timor, Aru Islands.—*Dobson*.

94a. A stuffed adult female, No. 54A of Blyth's Catalogue. Coromandel Coast. Presented by Sir Walter Elliot, 1846.

b. A stuffed adult male, No. 54B of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1851. Type of *Pteropus seminudus*, Kelaart.

c. An adult female in alcohol. Singhbhúm. Presented by V. Ball, Esq., 1870.

d. An adult female in alcohol. Luzon, Philippine Islands. By exchange with the Berlin Museum.

e. An adult female in alcohol. Pegu. Presented by W. Theobald, Esq., 1872.

f. An adult male in alcohol. Kishm Island, Persian Gulf. Presented by W. T. Blanford, Esq., 1872.

g to i. Two adult males and one adult female in alcohol. Moulmain Caves. Presented by J. Armstrong, Esq., M.B., 29th August 1877.

#### 95. *Cynonycteris minor*.

*Cynonycteris minor*, *Dobson, Journ. As. Soc. Beng.* 1873, p. 203, pl. xiv, fig. 9; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 73.

*Hab.* Java.

95a. The skin and skull of an adult male, No. 55A of Blyth's Catalogue. Presented by the Batavian Society, 1845. *Type*.

#### 96. *Cynonycteris collaris*.

*Pteropus collaris*, *Illiger, Abhandl. Akad. Berl.* 1815, p. 84.

*Cynonycteris collaris*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 75.

*Hab.* Equatorial and Southern Africa (West Africa, Gaboon; East Africa, Natal; South Africa, Cape of Good Hope).—*Dobson*.

96a. The skin of an adult male, No. 56A of Blyth's Catalogue. South Africa. Presented by E. L. Layard, Esq., 1859.

### GENUS CYNOPTERUS.

#### SUB-GENUS CYNOPTERUS.

#### 97. *Cynopterus marginatus*.

*Pteropus marginatus*, *Geoff., Ann. du Mus. t.* xiv, p. 97.

*Cynopterus marginatus*, *Dobson, Cat. Chiropt. B. M.*, 1878, p. 81.



*Hab.* India generally, from the Himalaya to Cape Comorin; Ceylon, Andaman Islands, Arakan, Burma, Malay Peninsula, Siam, Sumatra, Java, Billiton Island, Borneo, Celebes, Philippine Islands.—*Dobson.*

97*a* to *g*. Seven skins of males and females. Calcutta. Nos. 58 A to G of Blyth's Catalogue, 1841-51.

*h* & *i*. An adult male and female in alcohol. Calcutta. No. 58J of Blyth's Catalogue.

*j* & *k*. Two skins of adults, Nos. 58L & M of Blyth's Catalogue. Malacca. Presented by the Batavian Society, 1845.

*l*. Two skins of adults, No. 58O of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*m*. The ligamentary skeleton of an adult: wanting the lower jaw. No. 58(?) of Blyth's Catalogue. Ceylon. Presented by Dr. Kelaart.

*n* & *o*. Two adults, male and female, in alcohol. No. 58(?) of Blyth's Catalogue. Ceylon. Presented by Dr. Kelaart.

*p* & *q*. An adult male and female in alcohol. Darjeeling. Presented by Dr. J. Anderson, 1866.

*r*. An adult female in alcohol. Cachar. Museum Collector, 1868.

*s*. A ligamentary skeleton. Cachar. Museum Collector, 1868.

*t*. An adult male in alcohol. Chárápunjí. Presented by Lieutenant J. H. Bourne, 1872.

*u*. An adult male in alcohol and its skull. Bhamo, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*v*. A young female in alcohol. Darjeeling. Presented by G. King, Esq., M.B., 6th March 1877.

*w* to *aa*. Three males and two females in alcohol. Andamans. Presented by Lieut.-Colonel R. C. Tytler, 1864.

*bb* & *cc*. An adult male and female in alcohol. Andamans. Collected by J. Wood-Mason, Esq., 1872.

*dd*. One adult female in alcohol. Andamans. Presented by J. Homfray, Esq., 1872.

The foregoing specimens from the Andaman Islands are the types of *C. marginatus*, var. *andamanensis*, Dobson, Journ. As. Soc. Beng., vol. lxii, 1873, p. 201, pl. xiv, fig. 5, but which were placed by him under *Cynopterus brachyotus*, Muller, in his Monograph of the Asiatic Chiroptera, 1876, p. 26, fig. of ear, and p. 190.

*ee*. A stuffed adult male. Alipore. Presented by J. Cockburn, Esq., 1st April 1878.



*ff to hh.* Skins of two males and of one young female. Penang. From the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

*ii & jj.* Two females in alcohol. Calcutta. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

*kk.* An adult male in alcohol. No history.

*ll.* A female in alcohol. Karáchi. By exchange with the Karáchi Museum, 9th September 1878.

#### 98. *Cynopterus scherzeri*.

*Pacyhsoma scherzeri*, *Fitzinger, Sitzungs. Wien. Akad.* 1860, p. 389, (*nom. nudum*).

*Cynopterus scherzeri*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 84.

*Hab.* Car-Nicobar Island.

*98a & b.* An adult female and its young in alcohol. Car-Nicobar Island. Presented by Dr. F. Stoliczka, 1873.

*c to e.* Two adult males and one young female in alcohol. Car-Nicobar Island. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

#### 99. *Cynopterus brachysoma*.

*Cynopterus brachysoma*, *Dobson, Journ. As. Soc. Beng.* 1871, p. 260; 1873, p. 202, pl. xiv, fig. 7; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 85.

*Hab.* Southern Andaman Islands.

*99a.* An adult female in alcohol. Andamans. Presented by Dr. F. Stoliczka, 1871. *Type.*

### II.—GROUP MACROGLOSSI.

#### GENUS EONYCTERIS, Dobson, 1873.

#### 100. *Eonycteris spelæa*.

*Macroglossus spelæus*, *Dobson, Proc. As. Soc. Beng.* 1871, p. 106; *Journ. As. Soc. Beng.* 1871, p. 261, pl. x, figs. 3 & 4.

*Eonycteris spelæa*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 94.

*Hab.* Burma (Farm Caves, Moulmain).—*Dobson.*

*100a to d.* Four adult females, one gravid, in alcohol. Farm Caves, Moulmain. Presented by Wm. Theobald, Esq., 1872. *a* the *Type.*

*e.* A mounted skeleton of a male. Farm Caves, Moulmain. Presented by Wm. Theobald, Esq., 1872.

*f.* An adult female in alcohol. Moulmain. No history.

#### GENUS MACROGLOSSUS, F. Cuv., 1825.

##### 101. *Macroglossus minimus*.

*Pteropus minimus*, *Geoffroy, Ann. du Mus.* t. xv, p. 97 (1810).

*Macroglossus minimus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 96.

*Hab.* From the Himalaya (Darjeeling) through Burma to the Malay Archipelago, and North and West Australia. Probably distributed throughout all the islands of the Malay Archipelago, and extending as far east as New Ireland.—*Dobson.*

101a. An adult female in alcohol, No. 57A of Blyth's Catalogue. Presented by Major Berdmore, 1858.

*b.* The skin of an immature individual. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*c.* A stuffed specimen. Siam. Collected by Dr. G. Finlayson; from the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

## II.—SUB-ORDER MICROCHIROPTERA.

### I.—FAMILY RHINOLOPHIDÆ.

#### I.—SUB-FAMILY RHINOLOPHINÆ.

#### GENUS RHINOLOPHUS, Geoff., 1803.

##### 102. *Rhinolophus cælophyllus*.

*Rhinolophus cælophyllus*, *Peters, Proc. Zool. Soc.* 1866, p. 426, pl. xxxiv; *Dobson, Cat. Chiropt. B. M.* 1878, p. 104.

*Hab.* Moulmain; Tsagain, Upper Burma.

102a & *b.* An adult male and female in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

##### 103. *Rhinolophus luctus*.

*Rhinolophus luctus*, *Temminck, Monogr. Mammal.* t. ii, p. 24, pl. xxx; *Dobson, Cat. Chiropt. B. M.* 1878, p. 105.

*Hab.* India (Western Ghats; Himalaya, Nepal, Masuri, Darjeeling, Sikkim; Khási Hills); Ceylon; Java; Sumatra; Borneo; Philippine Islands.—*Dobson*.

103*a*. The skin and skull of an adult, Nos. 62 A and B of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1852.

*b*. An imperfect skeleton, No. 62C of Blyth's Catalogue. Prepared from a specimen presented by B. H. Hodgson, Esq., 1842.

*c*. The skin of an adult. Darjeeling. Presented by H. J. Elwes, Esq., 1870.

*d* & *e*. An adult female and its foetus in alcohol. Darjeeling. Presented by J. Gammie, Esq., 1872.

#### 104. *Rhinolophus trifolius*.

*Rhinolophus trifolius*, *Temm.*, *Monogr. Mamm.* t. ii, 1835-41, p. 27, pl. 31; *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 106.

*Hab.* India (Eastern Coast); Java; Borneo.—*Dobson*.

104*a*. An adult male in alcohol. Sihságar, Assam. Presented by S. E. Peal, Esq., 16th December 1875.

#### 105. *Rhinolophus mitratus*.

*Rhinolophus mitratus*, *Blyth*, *Journ. As. Soc. Beng.* vol. xiii, 1844, p. 483; xxii, 1852, p. 409; *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 107.

*Hab.* Peninsula of India (Cháibása).

105*a* & *b*. The skins of two adults, Nos. 63 A and B of Blyth's Catalogue. Cháibása. Presented by Lieut.-Colonel S. R. Tickell, 1843.

106. An adult female in alcohol. Darjeeling District. Presented by G. King, Esq., M.B., 6th March 1877.

#### 106. *Rhinolophus euryotis*.

*Rhinolophus euryotis*, *Temminck*, *Monogr. Mamm.* t. ii, 1835-41, p. 26, pl. 29 fig. 5; pl. 32 figs. 13, 14, 15; *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 108.

*Hab.* Amboina; Aru Islands.—*Dobson*.

106*a* & *b*. An adult female and male in alcohol. Amboina. By exchange with the Berlin Museum, 1872.



107. *Rhinolophus pearsonii*.

*Rhinolophus pearsonii*, *Horsfield, Cat. Mamm. Mus. E. I. Co.* (1851) p. 33; *Dobson, Cat. Chiropt. B. M.* 1878, p. 108.

*Hab.* India (Masuri, Darjeeling, Khási and Gáro Hills, Tipai Mukh); Tibet; Yunnan (Hotha).—*Dobson*.

107*a* & *b*. Two adult males in alcohol, and the skull of *b*. Hotha, 4,500 feet, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*c*. The skin of an adult. Tipai Mukh. Lushai Expedition. Museum Collector, 1872.

108. *Rhinolophus macrotis*.

*Rhinolophus macrotis* (*Hodgson*), *Blyth, Journ. As. Soc. Beng.* xiii, p. 485; *Dobson, Cat. Chiropt. B. M.* 1878, p. 110.

*Hab.* Himalaya (Nipal, Masuri).

108*a*. An adult female in alcohol, No. 70A of Blyth's Catalogue. Nipal. Presented by B. H. Hodgson, Esq., 1842.

*b*. Two adult males in alcohol, No. 70B of Blyth's Catalogue. Masuri. Presented by Captain T. Hutton, 1852.

109. *Rhinolophus affinis*.

*Rhinolophus affinis*, *Horsfield, Zool. Resch. in Java* (1824); *Temminck Monogr. Mamm.* t. ii, p. 31 (1835); *Dobson, Cat. Chiropt. B. M.* 1878, p. 112.

*Hab.* Peninsula of India from the Himalaya to Cape Comorin (inhabiting hill tracts); Ceylon; Burma; Sumatra; Java; Borneo.—*Dobson*.

109*a* to *f*. Six skins in very bad condition, Nos. 67 A to F of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

*g* to *i*. Three skins of adults, Nos. 68 A to C of Blyth's Catalogue. Barrackpore. Presented by Lieut.-Colonel R. C. Tytler, 1852-60.

*j* to *l*. One adult male and two females in alcohol, No. 67H of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

*m*. An adult male in alcohol. No history. Of the last three specimens, and including this, "a male and female answer to Kelaart's description of *R. rubidus*; the third, a female, to

Horsfield's original description of *R. affinis*."—*Dobson, Monogr. As. Chiroptera*, p. 195.

*n* & *o*. Two adult females in alcohol. No history.

*p*. An adult male in alcohol. Hotha, 4,500 feet. Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

\* *q* & *r*. Two adult males in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*s*. The skin of an adult. Darjeeling. Presented by J. Gammie, Esq., 1872.

#### 110. *Rhinolophus andamanensis*.

*Rhinolophus andamanensis*, *Dobson, Journ. As. Soc. Beng.*, 1872, p. 337; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 113.

*Hab.* Southern Andaman Island.—*Dobson*.

110*a*. An adult male in alcohol. Andamans. Presented by J. Homfray, Esq., 1872. *Type*.

#### 111. *Rhinolophus petersii*.

*Rhinolophus petersii*, *Dobson, Journ. As. Soc. Beng.* 1872, p. 337; *ib.*, *Cat. Chiropt. B. M.* 1878, p. 113.

*Hab.* Unknown.

111*a* & *b*. Two adult males in alcohol. No history. *Types*.

#### 112. *Rhinolophus minor*.

*Rhinolophus minor*, *Horsfield, Zoolog. Resch. in Java* 1824; *Dobson, Cat. Chiropt. B. M.* 1878, p. 114.

*Hab.* Peninsula of India; Yunnan; Burma; Siam; Sumatra; Java; Borneo; Japan.—*Dobson*.

112*a* to *c*. Two adult females and one adult, sex undeterminable. No history. *Types*.

*d*. An adult female in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*e*. An adult male in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1875.

#### 113. *Rhinolophus garoensis*.

*Rhinolophus garoensis*, *Dobson, Journ. As. Soc. Beng.* 1872, p. 337; *ib.*, *Cat. Chiropt. B. M.* 1878, p. 115.

*Hab.* Gáro Hills, Assam; Himalaya (Masuri).—*Dobson.*

113*a.* An adult female in alcohol. Gáro Hills, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1871. *Type.*

#### 114. *Rhinolophus euryale.*

*Rhinolophus euryale*, *Blasius, Archiv. fur. Naturg.* Bd. 1, p. 49;  
*Dobson, Cat. Chiropt. B. M.* 1878, p. 116.

*Hab.* Europe (south of the Alps); Asia Minor (Syria); Northern Africa.—*Dobson.*

114*a.* An adult female in alcohol. Pisa, Italy. By exchange with the Berlin Museum, 1872.

*b to f.* Three males and two females in alcohol. Jerusalem, Palestine, 18th April 1880. Collected and presented by Dr. J. Anderson, 28th December 1880.

#### 115. *Rhinolophus hipposideros.*

*Noctilio hipposideros*, *Bechstein, Naturg. Deutschl.* p. 1194, 1801.  
*Rhinolophus hipposiderus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 117.

*Hab.* Palæarctic Region; Southern and Middle Europe; North-East Africa; Asia Minor; Java.

115*a to c.* Two adolescent males, and one adult female in alcohol. Europe. Presented by the Hungarian Museum, April 1863.

#### 116. *Rhinolophus ferrum-equinum.*

*Vespertilio ferrum-equinum*, *Schreb. Säugeth.* Bd. 1, p. 174 (1775).  
*Rhinolophus ferrum-equinum*, *Dobson, Cat. Chiropt. B. M.*, 1878, p. 119.

*Hab.* Europe; Africa; Asia (Himalaya and Japan).

116*a & b.* An adult male and female in alcohol, in very bad condition; Nos. 66 C and D of Blyth's Catalogue. Masuri. Presented by Captain T. Hutton, 1852. *R. tragatus*, Hodgson, according to Blyth.

*c.* An adult female in alcohol. Chuari, Chamba, 3,000 ft. Presented by Captain W. G. Murray, 1872.

*d.* A skin of an adult, No. 72A of Blyth's Catalogue. France. Presented by M. Melherbe, 1856.

*e.* A skin in bad condition, No. 65A of Blyth's Catalogue. Darjeeling. Presented by W. T. Blanford, Esq., 1857. Type of *R. brevitarisus*, Blyth. Dr. Dobson remarks, *l.c.*, p. 197, that this may perhaps be *R. minor*.



*f to h.* Two adult males and one adult female. Europe. Presented by the Hungarian Museum, April 1863.

### 117. *Rhinolophus capensis*.

*Rhinolophus capensis*, *Lichtenstein, Verz. Zool. Mus. Berl.* 1823, p. 4 ;  
*Dobson, Cat. Chiropt. B. M.* 1878, p. 121.

*Hab.* South Africa (Zanzibar, Cape Colony).—*Dobson*.

117*a.* An adult male in alcohol. Cape of Good Hope. By exchange with the British Museum, 6th September 1877.

### 118. *Rhinolophus*—(?)

*Rhinolophus*—(?) *Dobson, Monogr. Asiatic Chiropt. et Cat. Chiropt. Ind. Mus.* 1876, p. 196.

*Hab.* Unknown.

118*a.* An adult male in alcohol. No history.

### 119. *Rhinolophus*—(?)

*Rhinolophus*—(?) *Dobson, Monogr. Asiatic Chiropt. et Cat. Chiropt. Ind. Mus. Calcutta*, 1876, p. 196.

*Hab.* Unknown.

119*b.* An adult male in alcohol. No history.

## II.—SUB-FAMILY PHYLLORHININÆ.

GENUS TRIÆNOPS, Dobson, 1871.

### 120. *Triænops persicus*.

*Triænops persicus*, *Dobson, Journ. As. Soc. Bengal*, xl, p. 455, pl. xxviii ;  
*ibid.*, *Cat. Chiropt. B. M.* 1878, p. 124.

*Hab.* Shiráz, Persia, 4,750 feet.

120*a.* An adult female in alcohol. Shiráz, Persia. Presented by Lieut.-Colonel St. John, C.S.I., 1870. *Type*.

*b.* An adult female in alcohol. Shiráz, Persia. Presented by Lieut.-Colonel St. John, C.S.I., 1870. *Type*.

*c.* A skeleton of an adult male. Shiráz, Persia. Presented by Lieut.-Colonel St. John, C.S.I., 1870. *Type*.

GENUS PHYLLORHINA, Bonaparte, 1831.

121. *Phyllorhina tridens*.

*Phyllorhina tridens* (Geoffroy), *Dobson, Cat. Chiropt. B. M.* 1878, p. 131.

*Hab.* Africa (Egypt, Zanzibar); Persia (Bushire); Sind (Karáchí).

121a to ff. Seventeen males and fifteen females in alcohol. From the temple of Denderah, Upper Egypt, 6th March 1880, where this bat occurs in immense numbers. Collected and presented by Dr. J. Anderson, 18th January 1881.

VAR. *murraiana*.

Distinguished from typical *P. tridens*, by its somewhat shorter, broader, and less pointed ears, but which otherwise conform to the characters of the ears of *P. tridens*. The projections, from the upper nose leaf are more marked than in *P. tridens* from Egypt, but in other respects the nose leaf is exactly as in it. The interfemoral and wing membranes are prolonged somewhat further down the tibia than is the case in bats of this species from Egypt, and the former membrane reaches the proximal end of the penultimate osseous caudal vertebra.

It attains to a larger size than any of the foregoing bats from Egypt, and the following are the measurements of the adult female *hh*; total length of body, 2"·30; tail 1"; head 0"·80; ear 0"·70; breadth of ear 0"·68; fore-arm 2"·07; thumb 0"·32; third finger, metacarpal 1"·46; 1st phalanx 0"·64; 2nd phalanx 0"·66; fifth finger, metacarpal 1"·16; 1st phalanx 0"·60; 2nd phalanx 0"·45; tibia 0"·74; foot 0"·40."

*gg*. An adult male in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

*hh*. An adult female in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

*ii*. An adolescent female in alcohol. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

*jj*. An adult female in alcohol. Bushire. Persian Gulf. The Karáchí Museum, by exchange, 29th August 1879.

122. *Phyllorhina tricuspidata*.

*Rhinolophus tricuspidatus*, *Temm., Monogr. Mamm.* vol. ii, p. 26, pl. xxix fig. 4; pl. xxxii, figs. 11 and 12.

*Phyllorhina tricuspidata*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 131.



*Hab.* Austro-Malayan Sub-region (Morty Island; Batchian Amboina; New Ireland).—*Dobson*.

122*a*. An adult female in alcohol. Batchian. By exchange with the Berlin Museum, 1872.

123. *Phyllorhina stoliczkana*.

*Asellia stoliczkana*, *Dobson, Proc. As. Soc. Beng.* May 1871, p. 106;

*Journ. As. Soc. Bengal*, 1871, p. 263, pl. xx fig. 1.

*Phyllorhina stoliczkana*, *Cat. Chiropt. B. M.* 1878, p. 132.

*Hab.* Penang.

123*a*. An adult male in alcohol. Penang. Presented by Dr. F. Stoliczka, 1871. *Type*.

124. *Phyllorhina armigera*.

*Rhinolophus armiger*, *Hodgson, Journ. As. Soc. Beng.* iv, 1835, p. 699.

*Phyllorhina armigera*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 135.

*Hab.* Himalaya (Masuri; Darjeeling; Nepal; Khási Hills); Ceylon; China (Amoy).—*Dobson*.

124*a*. An adult male in alcohol, No. 74A of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1852.

*b*. A skin of an adult female in bad condition, No. 74 B of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1852.

*c*. An adult female in alcohol. Khási Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870.

*d to f*. Two adolescent females and one very young female in alcohol. Shillong, Khási Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

*g & h*. Two adult females in alcohol. Katmandu, Nepal. Museum Collector, 1871.

*i*. Skin of an adult male. Darjeeling. Presented by H. J. Elwes, 1871.

*j*. Skin of an adult male. Dr. Cantor. Penang. From the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

125. *Phyllorhina leptophylla*.

*Phyllorhina leptophylla*, *Dobson, Journ. As. Soc. Bengal*, 1874, p. 234;

*ibid.*, *Cat. Chiropt. B. M.* 1878, p. 136.

*Hab.* Khási Hills; Eastern Bengal.—*Dobson*.



125a. An adult male in alcohol. Khási Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870. *Type*.

126. *Phyllorhina diadema*.

*Rhinolophus diadema*, Geoffroy, *Ann. Mus. d'Hist. Nat.* livr<sup>n</sup> xx, p. 263.  
*Phyllorhina diadema*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 137.

*Hab.* Peninsula of India generally; Ceylon; Burma; Sumatra; Java; Borneo; Timor; Batchian Island; Amboina; Aru Islands; Philippine Islands.—*Dobson*.

126a & b. An adult male and female in alcohol, Nos. 75 A and B of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852. *H. lankadiva*, Kelaart.

c. Skin of an adult female in bad condition, No. 75C of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

d. Imperfect skeleton of an adult, No. 75D of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

e. A stuffed adult, No. 76A of Blyth's Catalogue. Moulmain. Presented by Lt.-Colonel S. R. Tickell, 1858.

f. An adult female in alcohol. Darjeeling. Presented by Dr. J. Anderson, 1867.

g to i. Three skins of adults. Udaipur. Presented by V. Ball, Esq., 1871.

j. An adult male in alcohol. Pullandur, Central Provinces. Presented by W. T. Blanford, Esq., 1871.

k. The skull of an adult. No history.

VAR. a.

*Phyllorhina masoni*, Dobson, *Journ. As. Soc. Beng.* 1872, p. 338; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 138.

*Hab.* Moulmain, Burma.

l. An adult male in alcohol. Moulmain. Presented by Captain Hood, 1872. *Type*.

127. *Phyllorhina nicobarensis*.

*Phyllorhina nicobarensis*, Dobson, *Journ. As. Soc. Beng.* 1871, p. 262, pl. xx fig. 2; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 138.

*Hab.* Nicobar Islands.

127a. An adult female in alcohol. Nicobars. Presented by Dr. F. Stoliczka, 1871. *Type*.

128. *Phyllorhina galerita*.

*Hipposideros galeritus*, *Cantor, Journ. As. Soc. Beng.* 1846, p. 183.

*Phyllorhina galerita*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 141.

*Hab.* Peninsula of India (Deccan); Penang; Java; Labuan.  
—*Dobson*.

128a. An adult female in alcohol. Lingsugur, Deccan.  
Presented by G. E. Dobson, Esq., M.B., 1876.

129. *Phyllorhina speoris*.

*Vespertilio speoris*, *Schneider, Suppl. Schreber, Säugeth. Atlas*, i, pl. 59 B.

*Phyllorhina speoris*, *Dobson, Cat. Chiropt. B. M.* 1878, pp. 143 et 553.

*Hab.* Oriental Region (Peninsula of India; Ceylon; Burma; Java and probably the other islands of the Malay Archipelago in the Indo-Malayan Sub-region).—*Dobson*.

129a & b. An adult female and male in alcohol, Nos. 78 A and B of Blyth's Catalogue. South India. Presented by Sir Walter Elliot, 1842.

c. Skin of an adult, No. 78C of Blyth's Catalogue. South India. Presented by Sir Walter Elliot, 1842.

d to g. Four skins of adults, Nos. 78 D to G of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

h. Skin of an adult, No. 78J of Blyth's Catalogue. Dehra Dun. Presented by L. C. Stewart, Esq., 1854.

i. Skull of an animal from the Deccan, No. 78K of Blyth's Catalogue. No history.

j to n. An adult male and female, and one young male, and two young females in alcohol. Ceylon. Presented by E. L. Layard, Esq.

o. An adult male in alcohol, Prome, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

p. An adult female in alcohol. Chánda. Museum Collector, 1869.

q to s. An adult male and female and young in alcohol. Trichinopoly. Presented by Lieut.-Colonel Beddome, 19th November 1877.

t to u. Two adult females in alcohol. Travancore. Presented by Lt.-Colonel Beddome, 9th September 1878.



130. *Phyllorhina larvata*.

*Rhinolophus larvatus*, vulgaris, insignis et deformis, Horsfield, *Zoolog. Resch. in Java* (1824).

*Phyllorhina larvata*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 145.

*Hab.* Eastern Bengal (Khási hills; Sylhet, Goálpára, Arakan); Burma; Penang, Prome, Tenasserim; Siam; Java; Philippine Islands.—*Dobson*.

130*a* to *c*. Three skins of adults, Nos. 77 A to C of Blyth's Catalogue: in bad condition. Arakan. Presented by Sir Arthur Phayre, 1842.

*d* to *f*. Three skins of adults; Nos. 77 D to G. The skull of *d* separate. Sylhet. Presented by F. Skipwith, Esq., C.S., 1853.

*g*. An adult male in alcohol. Goálpára, Assam. Presented by H. L. Houghton, Esq., 1868.

*h* to *y*. Six males and twelve females in alcohol. Caves on right bank of Irrawadi opposite to Prome, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. The skull of *m* separate.

*z* to *bb*. Two adult males and a gravid female in alcohol. Khási hills. Presented by Lieutenant J. H. Bourne, 1872.

*cc*. An adult female in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*dd* to *hh*. One male and four adult females. Pegu. Presented by W. Theobald, Esq., 1872.

*ii*. The skeleton of an adult from the caves opposite to Prome, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*jj*. An imperfect skull of an adult from the caves opposite to Prome, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*kk* & *ll*. Two adult males in alcohol from Ashoun, Tenasserim. Presented by W. T. Blanford, Esq., 4th March 1877.

*mm* & *nn*. Two adult males in alcohol from near Moulmain. Presented by W. T. Blanford, Esq., 9th September 1878.

*oo*. A female in alcohol. Prome. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

131. *Phyllorhina bicolor*.

*Rhinolophus bicolor*, Temm., *Monogr. Mammal.* t. ii, p. 18.

*Phyllorhina bicolor*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 148.



*Hab.* The Oriental Region. Typical examples have been found chiefly in the Indo-Malayan Sub-region (Nicobar Islands, Java, Borneo, Philippine Islands). Two of the varieties (*Phyllorhina amboinensis* and *P. aruensis*) extend into the northern parts of the Australian Region.—*Dobson*.

131*a* to *k*. Seven adult females, and four newly-born females, reddish chestnut, in alcohol. Nicobar Islands. Presented by J. Wood-Mason, Esq., 1873.

VAR. *α*. *Phyllorhina fulva*.

*Hipposideros fulvus et murinus*, Gray, *Mag. Zool. & Bot.* vol. ii, p. 492 (1838).

*Phyllorhina fulva*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 149.

*Hab.* The continental parts of the Oriental Region; India, Ceylon, Burma, China (Amoy).—*Dobson*.

132*a*. The skin of an adult, No. 79A of Blyth's Catalogue and type of *Hipposideros cineraceus*, Blyth. Pind Dádan Khán, Punjab Salt Range. Presented by W. Theobald, Esq., 1853.

*m* to *o*. An adult male and two adult females in alcohol: *m* and *n* are No. 79B of Blyth's Catalogue, whereas *o* is No. 80A of Blyth's Catalogue, and is a small specimen with the wings from the side of the tarsi: taken from an unlabelled bottle containing several species. *m* and *n* are from Pind Dádan Khán, Punjab Salt Range. Presented by W. Theobald, Esq., 1853. The history of *o* is unknown.

*p* to *s*. A young male and two adolescent males, and one adolescent female; probably No. 80B of Blyth's Catalogue. No history.

*t*. Skin of an adult in very bad condition. South India. Presented by Sir Walter Elliot, 1842.

*u* & *v*. Two skins of adults. Chánda. Museum Collector, 1867.

*w* & *x*. Two adult males in alcohol and the skull of *w*. Ponsee. Kakhyen hills, 3,500 ft. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*y* to *cc*. Five adult males in alcohol: fur bright golden yellow throughout. Cave No. 5, Tsagain, right bank of the Irrawadi, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*dd* to *ee*. An adult male and female in alcohol: fur white at the base, with dark-brown extremities. Cave No. 4, Tsagain, right bank of the Irrawadi, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*ff to qq.* Nine adult males and three adult females in alcohol: fur white at the base, with dark-brown extremities. Cave No. 8, Tsagain, right bank of the Irrawadi, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*rr.* The skin of an adult female. Agra. Presented by the Trustees of the Riddell Museum, Agra, 1869.

*ss.* An adult female in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870.

*tt & uu.* An adult male and female in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*vv.* An adult female in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*ww to yy.* Two males and a female in alcohol. Kachh. Presented by Dr. F. Stoliczka, 1872.

*zz to ddd.* Three females and two adult males. Prome, Burma. Presented by W. Theobald, Esq., 1872. The three females are pregnant, and the fur is bright golden yellow.

*eee.* An adult male in alcohol: very dark coloured. Názira, Assam. Presented by J. M. Foster, Esq., 1872.

*fff to iii.* Three males and one female in alcohol. Gauri Ságar Temple, Assam. Presented by J. M. Foster, Esq., 1875.

*jjj.* A skin of an adult. Cachar. Museum Collector, 1868.

*kkk & ll.* An adult and an adolescent male in alcohol. Travancore. Presented by Lt.-Colonel Beddome, 9th September 1878.

*mmm & unn.* An adult female and male in alcohol. Allahabad. Presented by John Cockburn, Esq., 20th March 1877.

*ooo.* An adult in alcohol. Chárápunjí. Bequeathed by Dr. F. Stoliczka to the Asiatic Society of Bengal, 15th December 1875.

VAR. *b.* *Phyllorhina amboinensis.*

*Phyllorhina amboinensis*, *Peters, M. B. Akad. Berl.* 1871, p. 323; *Dobson, Cat. Chiropt. B. M.* 1878, p. 150.

*Hab.* Amboina; Peninsula of India.—*Dobson.*

*ppp & qq.* An adult male and female in alcohol. Ling-sugur, Deccan. Presented by G. E. Dobson, Esq., M.B., 1876.

132. *Cœlops frithii.*

*Cœlops frithii*, *Blyth, Journ. As. Soc. Beng.* vol. xxii, p. 251; vol. xxi, p. 361; *Dobson, Cat. Chiropt. B. M.* 1878, p. 152.



*Hab.* Bengal (Sundarbans) ; Java.

132a. A skin in a very dilapidated condition, No. 81A of Blyth's Catalogue. Sundarbans, Bengal. Presented by R. W. G. Frith, Esq., 1846. *Type.*

## II.—FAMILY NYCTERIDÆ.

### I.—SUB-FAMILY MEGADERMINÆ.

GENUS MEGADERMA, Geoffroy, 1810.

SUB-GENUS LYRODERMA, Peters.

#### 133. *Megaderma* *lyra*.

*Megaderma lyra*, Geoffroy, *Ann. du Muséum*, t. xv, p. 190 (1810); p. 5 (1839) ; *Suppl. Schreb., Säugeth.* v, p. 641 (1855) ; Dobson, *Cat. Chiropt. B. M.* 1878, p. 156.

*Hab.* Peninsula of India (from Kashmir to Cape Comorin) ; Ceylon.—Dobson.

133a to c. The skins of two adult females and of one adult, Nos. 59 B, C, and D of Blyth's Catalogue, Calcutta.

d & e. The skins of two adult males, No. 59E of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1852.

f to h. Two adult females and one adult male in alcohol. No history.

i & j. Two imperfect skeletons, one wanting the skull ; Nos. 59 I and J of Blyth's Catalogue. Presented by Mr. W. Masters, 1842.

k & l. An adult male and a foetus in alcohol. Ráníganj. Purchased.

m to p. The skins of three adult males and one female. An old Fort near Chánda, Central Provinces. Museum Collector, 1867.

q & r. A stuffed adult and the skin of an adult. Singbhum. Presented by V. Ball, Esq., 31st February 1869.

s to u. Two males and one female in alcohol, one of the males newly born. No history.

v to aa. Five males, and one female in alcohol. These are all mature foetuses. Agra. Presented by the Trustees of the Riddell Museum, 1869.

bb to cc. A skin and a stuffed adult. Agra. Presented by the Trustees of the Riddell Museum, 1869.



*dd to ee.* Two adult males in alcohol. Sylhet. Presented by Lt.-Colonel H. H. Godwin-Austen, 1870.

*ff to qq.* Five adult females, one young female, and four young males and two newly-born males. All of these specimens were obtained at the same time and place in an out-house at Mr. Shillingford's indigo factory near Purneah; all the young, even the largest, were adherent to the teats, some attached to the abdominal, and others to the pectoral nipples, and I observed that they moved about with great energy from one teat to another. Besides these I examined about forty other females, and each had only one young one with it. Presented by Dr. J. Anderson, 1872.

*rr to tt.* Two females and one male in alcohol. Nássik. Presented by Lt.-Colonel Haughton, 1872.

*uu.* A perfect skeleton prepared from an example without a history, 1872.

*vv.* An adult male in alcohol. Alipore, Calcutta. Presented by J. Cockburn, Esq., 1877.

*ww.* An adult male in alcohol. Gházipur. Presented by W. Whitwell, Esq., 5th December 1877.

*xx to zz.* A young male and two adult females in alcohol. Travancore. Presented by Lt.-Colonel Beddome, 9th September 1878.

*aaa.* The skin of an adult, in bad condition. Nepal. From India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

*bbb & ccc.* An adult male from Purneah and an adult female from Rániganj in alcohol. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

#### 134. *Megaderma spasma*.

*Vespertilio spasma*, *Linnaeus, Syst. Nat.* 1758, p. 32.

*Megaderma spasma*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 157.

*Hab.* Malayan Peninsula, Malacca; Siam; Philippine Islands, Ternate, Celebes, Sumatra, Java (?), Ceylon.—*Dobson*.

134*a.* The skin of an adolescent, No. 61A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*b & c.* The skins of two adults, Nos. 61 B & C of Blyth's Catalogue. Malacca. Presented by Mr. W. G. Moxon, 1850.

*d & e.* An adult female and male in alcohol, Nos. 60 A & B of Blyth's Catalogue. Tenasserim. Presented by W. Theobald, Esq., 1855. The Types of *M. horsfieldi*, Blyth.

## II.—SUB-FAMILY NYCTERINÆ.

GENUS NYCTERIS, Geoffroy, 1803.

135. *Nycteris javanica*.*Nycteris javanicus*, *Geoffroy, Ann. du Mus.*, t. xx, p. 20 (1813).*Nycteris javanica*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 164.*Hab.* Java; Malayan Peninsula (Malacca).—*Dobson*.135*a*. The skin of an adult, No. 82A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1846.*b*. The skin and skull of an adult, in bad condition; No. 82B of Blyth's Catalogue. Malacca. Presented by Mr. W. G. Moxon, 1851.136. *Nycteris thebaica*.*Nycteris thebaica*, *Geoffroy, Descr. de l'Egypt*, t. ii, p. 119, 1812, pl. 1, No. 2.*Nycteris thebaica et capensis*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 165.*Hab.* South and East Africa.136*a*. An adult female in alcohol. The minute second premolar is in the line of the other teeth, but in all its other characters this specimen corresponds to the figure and description of *N. thebaica*. There does not appear, in view of the relations of the second premolar in this specimen, to be any valid reason for separating *N. thebaica* as a species distinct from *N. capensis*. The ruins of Karnak, Upper Egypt, 23rd March 1880. Collected and presented by Dr. J. Anderson, 15th January 1881.

## III.—FAMILY VESPERTILIONIDÆ.

## I.—GROUP PLECOTI.

GENUS NYCTOPHILUS, Leach, 1822.

137. *Nyctophilus timoriensis*.*Nyctophilus timoriensis* (*Geoffroy*), *Dobson, Cat. Chiropt. B. M.* 1878, p. 172.*Hab.* The Australian Region; from the Island of Timor to Tasmania, from West Australia to the Fiji Islands.—*Dobson*.



137*a*. The skin of an adult, No. 97A of Blyth's Catalogue. Presented by the Sydney Institution, 1846.

GENUS SYNOTUS, Keys & Blas., 1839.

138. *Synotus dargelinensis*.

*Plecotus dargelinensis*, *Hodgson, Ann. & Mag. Nat. Hist.* 1855, vol. xvi, p. 103.

*Synotus dargelinensis*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 177.

*Hab.* India (Darjeeling, Khási Hills, Sikkim, Masuri, Simla); Yárkand.—*Dobson*.

138*a* & *b*. An adult male and female in alcohol, Nos. 116 A & B of Blyth's Catalogue. Masuri. Presented by Capt. T. Hutton, 1844.

*c*. An adult female in alcohol. Darjeeling. Presented by Dr. J. Anderson, 1869.

*d*. An adult female in alcohol. Láchung, Sikkim, 8,000 ft. Presented by W. T. Blanford, Esq., 1872.

*e*. An adult female in alcohol. Simla. Presented by Moulvie Ator Ruhman, 1872.

*f*. An adult female in alcohol. Dr. F. Stoliczka. Yangi-hissar, between Káshghar and Yárkand. Presented by the Second Yárkand Mission, 1874.

*g*. A skull. No history.

GENUS PLECOTUS, Geoffroy, 1812.

139. *Plecotus auritus*.

*Vespertilio auritus*, *Linn., Syst. Nat.* 12th ed., 1766, p. 47; *Dobson, Cat. Chiropt. B. M.* 1878, p. 178.

*Hab.* The Palearctic Region, extending from Ireland through Europe and North Africa to the Himalaya, and probably generally distributed throughout the temperate parts of Asia.—*Dobson*.

139*a*. An adult female in alcohol, No. 114A of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1853.

*b* & *c*. The skins of two adults, Nos. 114 B & C of Blyth's Catalogue. England. Presented by H. E. Strickland, Esq., and Mr. Davison, 1844-47.

*d*. A stuffed adult, No. 114D of Blyth's Catalogue. France. Presented by M. Melherbe, 1854.



*e.* An adult in alcohol. Berlin. By exchange with the Berlin Museum, 1872.

*f.* An adult male in alcohol. Netley, England. Presented by G. E. Dobson, Esq., M.B., 1876.

*g to k.* Two males and three adult females in alcohol. Leh. Dr. F. Stoliczka. Presented by the Second Yarkand Mission, 1874.

*l to u.* Three males and seven females in alcohol. From the tombs of the Kings, Babel Moulouk. Left bank of the Nile, Upper Egypt. Collected and presented by Dr. J. Anderson, 18th January 1881.

## II.—GROUP VESPERTILIONES.

GENUS VESPERUGO, Keys and Blas., 1839.

SUB-GENUS VESPERUS.

### 140. *Vesperugo serotinus*.

*Vespertilio serotinus*, Schreber, *Säugeth.* Bd. i, p. 167, pl. 53.

*Vesperugo serotinus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 191.

*Hab.* The Palaearctic, Ethiopian, Oriental, Nearctic, and Neotropical regions.—Dobson.

140*a & b.* Two skins. Shiráz, South Persia. Museum Collector, 1871. Types of *Hesperus shiraziensis*, Dobson.

*c.* The skin of an adult, No. 100A of Blyth's Catalogue. France. Presented by M. Melherbe, 1852.

*d.* An adult female in alcohol. Gallicia. By exchange with the Berlin Museum, 1872.

*e to h.* Two adult males, an adult female, and a young female. Kashmir. Dr. F. Stoliczka. Presented by the Second Yarkand Mission, 1874.

*i to j.* Two females in alcohol. Shiráz, South Persia. W. T. Blanford, Esq. Presented by the Eastern Persian Boundary Commission, 1871-72.

*k & l.* An adult male in alcohol. Darrang, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

### 141. *Vesperugo andersoni*.

*Vesperus andersoni*, Dobson, *Proc. As. Soc. Beng.* Sept. 1871, p. 211.

*Vesperugo andersoni*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 195.

*Hab.* Teng-yue-chow, Yunnan.

141a. An adult male in alcohol. Teng-yue-chow, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. *Type*.

b. The skeleton of an adult male. Teng-yue-chow, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. *Type*.

#### 142. *Vesperugo nasutus*.

*Vesperugo nasutus*, Dobson, *Journ. As. Soc. Beng.* p. 311, 1877; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 200.

*Hab.* Shikárpur, Sind.

142a. An adult male in alcohol. Shikárpur, Sind. Presented by W. T. Blanford, Esq., 9th August 1878. *Type*.

#### 143. *Vesperugo atratus*.

*Nycticejus atratus*, Blyth, *Cat. Mamm. Mus. As. Soc. Beng.*, No. 96. *Vesperugo atratus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 206.

*Hab.* Himalaya (Darjeeling).

143a & b. Two adult females in alcohol, Nos. 96 A & B of Blyth's Catalogue; one much dilapidated. Darjeeling. Presented by Major W. S. Sherwill, 1853. Types of *Nycticejus atratus*, Blyth.

c. The skin of an adult in bad condition. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

#### 144. *Vesperugo discolor*.

*Vespertilio discolor*, Natterer, *Kuhl, Deutsch. Flederm. Wetter. Ann.* vol. iv (1819).

*Vesperugo discolor*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 204.

*Hab.* The Palearctic Region. In Europe extending from England through Southern Sweden and Russia to the Ural Mountains, and southwards through France, Germany and Italy; chiefly found, however, in the mountain tracts of these countries. In Asia recorded as yet from Western Siberia (Barnaul) and Eastern Turkistan (Kizil, Yangihissar) only. —Dobson.

144a. An adult male in alcohol. Berlin. By exchange with the Berlin Museum, 1875.

b & c. An adolescent male and female in alcohol. Kizil. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.



*d & e.* An adult and adolescent female in alcohol. Yangi-hissar. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

145. *Vesperugo pachyotis.*

*Vesperugo (Vesperus) pachyotis*, Dobson, *Proc. As. Soc. Beng.* 1871, p. 211; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 206.

*Hab.* Khási Hills, Assam.

145*a & b.* An adult male and female in alcohol. Khási Hills. Presented by Lieutenant J. H. Bourne, 1872.

146. *Vesperugo pachypus.*

*Vespertilio pachypus*, Temminck, *Monogr. Mammal.* vol. ii, p. 217, pl. 54, figs. 4-6.

*Vesperugo pachypus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 208.

*Hab.* Oriental Region; Peninsula of India (Darjeeling); Tenasserim Province; Andaman Islands; Sumatra, Java, Philippine Islands.—*Dobson.*

146*a to c.* An adult male and four females in alcohol, No. 103A of Blyth's Catalogue. Tenasserim. Presented by Major Berdmore, 1858. Types of *Scotophilus fulvidus*, Blyth.

*f & g.* Two adult females in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*h.* The skin of an adult. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*i to s.* Nine adult females, and one adult and one adolescent male in alcohol. Andamans. Presented by J. Homfray, Esq., 1871.

*t to ff.* Seven females and six males in alcohol. Andamans. Collected by J. Wood-Mason, Esq., 1872.

*gg.* The skeleton of an individual from the Andamans. Collected by J. Wood-Mason, Esq., 1872.

*hh.* A skull. No history.

*ii.* An adult female in alcohol. Darjeeling. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka.

*jj.* An adult female in alcohol. Andaman Islands. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

SUB-GENUS VESPERUGO.

147. *Vesperugo noctula.*

*Vespertilio noctula*, Schreber, *Säugeth.* Bd. i, p. 166, pl. 52 (1775).

*Vesperugo noctula*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 212.



*Hab.* Palaearctic, Ethiopian, and Oriental Regions, extending from England to Japan, and from the Scandinavian Peninsula to Southern Africa. In Europe generally distributed; in Asia extending from Western Turkestan along the Himalayas and other mountain ranges to Ceylon, and through the Malay Peninsula to Sumatra and Java; in Africa recorded from the northern parts, and from Mozambique.—*Dobson*.

147*a*. The skin of an adult, No. 89A of Blyth's Catalogue. England. Presented by H. E. Strickland, Esq., 1845.

*b* & *c*. Two skins of adults, Nos. 89 B and C of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1844.

*d*. An adult male in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*e*. An adult female in alcohol. Galicia. By exchange with the Berlin Museum, 1872.

#### 148. *Vesperugo leisleri*.

*Vespertilio leisleri*, *Kuhl, Ann. Wetteran. Gesellsch. Naturk.* 1819, Bd. i, p. 47.

*Vesperugo leisleri*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 215.

*Hab.* Europe and the temperate regions of Asia, extending from the Azores to the Himalaya.

148*a*. The skin of an adult, No. 102A of Blyth's Catalogue. England. Presented by H. E. Strickland, Esq., 1845.

*b*. An adult female in alcohol. Brandenburg. By exchange with the Berlin Museum, 1872.

#### 149. *Vesperugo imbricatus*.

*Vespertilio imbricatus*, *Horsfd., Zool. Resch. in Java*, 1874.

*Vesperugo imbricatus*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 217.

*Hab.* Malayan Peninsula (Malacca); Java.—*Dobson*.

149*a*. An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

#### 150. *Vesperugo maurus*.

*Vesperugo maurus*, *Blasius, Wiegmann, Arch.* 1853, p. 35; *Dobson, Cat. Chiropt. B. M.* 1878, p. 218.

*Hab.* The Palaearctic and Oriental Regions, extending from the Canary Islands (Palma, Teneriffe) and Middle

Europe (Switzerland and Tyrol) to China (Pekin, Amoy, Cochin China), India (Khási Hills) and the Malay Archipelago (Java).—*Dobson*.

150a. An adult male in alcohol. Geneva. By exchange with the Berlin Museum, 1872.

b. An adult male in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1871. Type of *Vesperugo austenianus*, Dobson.

c. An adult male in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1875.

d. An adult female in alcohol. Allahabad. Presented by John Cockburn, Esq., 19th March 1877.

e. An adult male in alcohol. Sind. By exchange with the Karáchi Museum, 4th June 1878.

f. An adult female in alcohol. Assam. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka.

#### 151. *Vesperugo affinis*.

*Pipistrellus affinis*, Dobson, *Proc. As. Soc. Beng.* 1871, p. 213.

*Vesperugo affinis*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 220.

*Hab.* Upper Burma (Bhamo, 450 feet).

151a. An adult female in alcohol. Bhamo, Upper Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868. *Type*.

#### 152. *Vesperugo pipistrellus*.

*Vespertilio pipistrellus*, Schreb., *Säugeth.* i, p. 167, pl. 54 (1775).

*Vesperugo pipistrellus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 223.

*Hab.* The Palearctic Region, apparently generally distributed.—*Dobson*.

152a. An adult male in alcohol. Berlin, Prussia. By exchange with the Berlin Museum, 1872.

b. An adult male in alcohol. England. Presented by G. E. Dobson, Esq., M.B., 1876.

c to j. Three adult and one adolescent male, and four adult females in alcohol. Yangihissar. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.

k to p. Three males and three females in alcohol. Kárgalik, south of Yárkand, 29th and 30th May 1874. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1874.



*g & r.* An adult male and female. Kashmir. Dr. F. Stoliczka. Presented by the Second Yárkand Mission, 1873-74.

*s.* An adult female in alcohol. By exchange with the Berlin Museum, 1872. Labelled *V. nathusii*, Keys and Blas.

*t.* The skin of an adult, No. 104A of Blyth's Catalogue. Amoy, China. Presented by R. Swinhoe, Esq., 1859. *Scotophilus pumiloides*, Tomes *apud* Blyth.

### 153. *Vesperugo abramus*.

*Vespertilio imbricatus*, Temm. (non Horsfield) *Monogr. Mammal.* t. ii, p. 216, pl. 54; *Wagner, Suppl. Schreb. Säugeth.* v, p. 738 (1855).  
*Vespertilio abramus*, Temm., *l. c.*, p. 232, pl. 58; *Wagner, l. c.*, p. 739.  
*Vesperugo abramus*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 226.

*Hab.* Apparently generally distributed throughout the Oriental Region, extending from India through Burma and China to Southern Japan and the Islands of the Malay Archipelago; also to the northern part of the Australian Region (Celebes, New Guinea, North Australia); found during the summer months in the Palearctic Region throughout middle Europe (*Blasius*) from the Rhine to Southern Russia, and from Northern Germany to the Mediterranean, even extending into Sweden (*Nilsson*).—*Dobson*.

*153a to c.* Three skins of adults in very bad condition, No. 105A of Blyth's Catalogue, Calcutta. No history. *Scotophilus coromandelianus*, F. Cuv., after Blyth.

*d & e.* An adult male and female in alcohol; No. 105B of Blyth's Catalogue, Calcutta. No history.

*f to h.* Three skulls in bad condition, No. 105C of Blyth's Catalogue, Calcutta. No history.

*i to l.* One male and three females in alcohol. No history.

*m.* An adult male in alcohol. Nicobars. Presented by J. Homfray, Esq.

*n.* An adult male in alcohol. Pegu. Presented by Dr. F. Stoliczka, 1871.

*o.* A young male in alcohol. Chánda. Museum Collector, 1867.

*p & q.* An adult male and female in alcohol. Cachar. Museum Collector, 1867.

*r to x.* Four young males, one adolescent male and one adult, and one adolescent female. Shiráz, Persia. Museum Collector, 1871.

*y.* The skin of an adult. Darjeeling. Presented by H. J. Elwes, Esq., 1871.



*z.* The skin of an adult. Hazáribágh. Presented by W. T. Blanford, Esq., 1872.

*aa.* The skin of an adult. Darjeeling. Presented by L. Mandelli, Esq., 1872.

*bb to mm.* Two adult and one adolescent males, and eight adult and one adolescent females. Khási Hills. Presented by Lieutenant J. H. Bourne, 1872.

*nn to rr.* Five skins of immature specimens. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*ss to vv.* Four adolescent males in alcohol. Pachwára. Presented by H. Whitwell, Esq., 1872.

*ww.* An adult female in alcohol. Hazáribágh. Presented by W. T. Blanford, Esq., 1872.

*xx.* An adult female in alcohol. Sirguja. Presented by W. T. Blanford, Esq., 1872.

*yy to bbb.* One adult, one adolescent, and one young female, and one young male in alcohol. Goálpára, Assam. Presented by H. L. Houghton, Esq., 1872.

*ccc & ddd.* Two adult females in alcohol. Gáro Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1872.

*eee & fff.* An adult male and female in alcohol. Nazira, Assam. Presented by J. M. Lister, Esq., 1872.

*ggg.* An adult female in alcohol. Manipur Hills. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

*hhh to kkk.* One adult male and three adult females. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*lll.* An adult male in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

*mmm to sss.* Three males and four females in alcohol. Chutia Nágpur. Presented by W. T. Blanford, Esq., 1872.

*ttt & uuu.* An adult female and an adolescent male in alcohol. Purneah. Presented by Dr. J. Anderson, 1872.

*vvv.* An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

*www to bbbb.* Six adult males in alcohol. Darjeeling. Presented by W. S. Atkinson, Esq., 1872.

*cccc to mmmm.* One adult, two adolescent, and one young male; and one adult, four adolescent, and two young females in alcohol. India, 1872. No history.

*nnnn to rrrr.* Two adult, one gravid, and two adolescent females in bad condition in alcohol. Rájanpur. Punjab Frontier. Presented by G. E. Dobson, Esq., M.B., 1872.

*ssss to aaaaa.* Two adult and three young males, and three adult and one young female, in alcohol. Darrang, Assam,

Duffla Expedition 1874. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

bbbb. An adult in alcohol. Sind. Presented by W. T. Blanford, Esq., 9th September 1878.

cccc. An adolescent male in alcohol. Calcutta. Presented by G. E. Dobson, Esq., M.B., 9th September 1878.

dddd. An adult female in alcohol. Japan. By exchange with the Berlin Museum, 1872.

This specimen in the catalogue of the Asiatic Chiroptera was (p. 216) referred to *V. akokumuli*, Temm.

eeee. The skeleton of an adult female from the Khási Hills. Presented by Lieut. J. H. Bourne, 8th April 1873.

#### 154. *Vesperugo kuhlii*:

*Vespertilio kuhlii*, Natt. in Kuhl, *Deutsch. Flederm. Wetteran Ann.* iv, p. 58 (1817).

*Vesperugo kuhlii*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 230.

*Hab.* Southern Europe, countries south of the Pyrenees, and the Alps; Northern Africa; Southern Asia, Palestine, Persia, Balúchistán, India; probably generally distributed throughout these countries.—*Dobson*.

154a & b. Two skins of adults in very bad condition, No. 99A of Blyth's Catalogue. Calcutta. No history, Types of *Nycticejus canus*, Blyth.

c & d. Two skins of adults. Cachar. Museum Collector, 1867.

e & f. Two very young females in alcohol. Calcutta. Presented by Mr. Dillon, 1866.

g. An adolescent male in alcohol. Calcutta. Presented by Dr. J. Anderson, 1870.

h. An adult female in alcohol. Purneah. Presented by Dr. J. Anderson, 1872.

i & j. An adolescent male and an adult female in alcohol. Dhappa, Calcutta. Presented by O. L. Fraser, Esq., 1872.

k & l. An adult male and female in alcohol. Lingsugur, Deccan. Presented by G. E. Dobson, Esq., M.B., 1876.

m & n. An adult male and female in alcohol. North Italy. By exchange with the Berlin Museum, 1872.

o. Skin of an adult. Shiráz, Persia. Museum Collector, 1871.

p. An adult male in alcohol. Rájanpur, Punjab Frontier. Presented by W. F. Murray, Esq., M.B., 1871. Type of var. *leucotis*, Dobson.



*q to s.* Three adult females in alcohol. South-East Persia. W. T. Blanford, Esq. Eastern Persia Commission, 1872.

*t.* One adult male in alcohol. Shiráz, South Persia. W. T. Blanford, Esq. Eastern Persia Boundary Commission, 1872.

*u.* One adult female. Karmán, South-East Persia. W. T. Blanford, Esq. Eastern Persia Boundary Commission, 1872.

*v.* An adult female in alcohol. Bampúr, Balúchistán. W. T. Blanford, Esq. Eastern Persia Boundary Commission, 1872.

*w to y.* An adult and adolescent male and one adult female in alcohol. Shikárpur, Sind. Presented by W. T. Blanford, Esq., 9th September 1878.

*z to bb.* An adult female with two fœtuses. Calcutta. Presented by Mr. H. Phillip, 24th March 1875.

*cc.* A stuffed specimen in bad condition. Sent by the Asiatic Society of Bengal to the India Museum, London. Presented by the Trustees of the British Museum, 13th April 1880. Labelled *Scotophilus lobatus*, Gray.

#### 155. *Vesperugo annectens*.

*Pipistrellus annectens*, Dobson, *Proc. As. Soc. Beng.* 1871, p. 213.

*Vesperugo annectens*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 234.

*Hab.* Nágá Hills, Assam.

155*a.* An adult female in alcohol. Nágá Hills, Assam. Presented by Captain J. Butler, 1871. *Type*.

#### SUB-GENUS HESPEROPTERUS, Peters.

#### 156. *Vesperugo tickelli*.

*Nycticejus tickelli*, Blyth, *Journ. As. Soc. Beng.* xx, p. 157.

*Vesperugo tickelli*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 240.

*Hab.* Peninsula of India (Cháibásá, Jashpur, Sirguja); Ceylon.—Dobson.

156*a to c.* Three skins of adults, Nos. 95 A to C of Blyth's Catalogue. Cháibásá. Presented by Lt-Colonel S. R. Tickell, 1842. *Types*.

*d.* A skull, No. 95D of Blyth's Catalogue from an individual. Presented by Lt.-Colonel S. R. Tickell, 1842.

*e to g.* An adult male and two females in alcohol. Andamans. Presented by Lt.-Colonel R. C. Tytler, 1864.

*h.* A skin of an adult. Singhbhúm. Museum Collector, 1869.



i. An adult male in alcohol. Sirguja. Presented by W. T. Blanford, Esq., 1871.

j. The skin of an adult. Jashpur. Presented by W. T. Blanford, Esq., 1871.

k. An adult male in alcohol. Tenasserim. Presented by W. T. Blanford, Esq., 9th September 1878.

157. *Vesperugo blanfordi*.

*Vesperugo blanfordi*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 242.

*Hab.* Tenasserim.

157*a*. An adult male in alcohol. Tenasserim. Presented by W. T. Blanford, Esq., 9th September 1878. *Type*.

b. An adolescent male in alcohol. Johore. Presented by J. Wood-Mason, Esq., 1873.

GENUS CHALINOLOBUS, Peters, 1866.

158. *Chalinolobus gouldii*.

*Chalinolobus gouldii* (Gray), Dobson, *Cat. Chiropt. B. M.* 1878, p. 250.

*Hab.* Australia (Queensland, New South Wales, Victoria, South Australia); Tasmania.—Dobson.

158. The skin of an adult, No. 97A of Blyth's Catalogue. Australia. Presented by the Sydney Institution, 1846.

GENUS SCOTOPHILUS, Leach, 1822.

SUB-GENUS SCOTOPHILUS.

159. *Scotophilus temminckii*.

*Scotophilus* (P) *kuhlii*, Leach, *Trans. Linn. Soc.* xiii (1822), p. 71.

*Vespertilio temminckii*, Horsfield, *Zool. Reschs. in Java* (1824).

*Scotophilus temminckii*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 258.

*Hab.* The Oriental Region (Peninsula of India, Ceylon, Burma; Southern China; Sumatra, Java, Borneo, and the Philippine Islands).—Dobson.

159*a* to *l*. Twelve skins of adults, Nos. 92A and 93A of Blyth's Catalogue. Calcutta. No history.

*m* to *r*. Three males and three females in alcohol, No. 93B of Blyth's Catalogue. Calcutta. No history. *q*, *r*, *s* are apparently fully grown (*N. luteus*, Blyth).

*s to y.* Seven skins. Asiatic Society of Bengal. No history.  
*z & aa.* Two skulls in bad condition, No. 93C of Blyth's Catalogue labelled *N. belangeri*. Calcutta. No history.

*bb.* A skeleton, No. 92 of Blyth's Catalogue labelled *N. flavescens*, Blyth.

*cc.* A skull, No. 92C of Blyth's Catalogue labelled *N. luteus*.

*dd.* An imperfect skeleton, No. 92D of Blyth's Catalogue. Calcutta. No history.

*ee.* The skin of an adult, No. 94A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*ff.* The skin, No. 94B of Blyth's Catalogue. Dacca. Presented by Lt.-Colonel R. C. Tytler, 1860.

*gg to ii.* Three adult males in alcohol. Kyndoolip, Burma. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*jj to ll.* Three adult females. No history.

*mm & nn.* One mounted adult and one skin. Presented by V. Ball, Esq., labelled *N. luteus*.

*oo to qq.* One adolescent and one young male, and one adult female. Rániganj. Purchased, 1869.

*rr to uu.* Two adolescent and two adult males in alcohol. Calcutta. Purchased, 1870.

*vv.* One adult male in alcohol. Rajmahal. Presented by V. Ball, Esq., 1868.

*ww to xx.* Two adult males in alcohol. Calcutta. Presented by V. Ball, Esq., 1868.

*yy to fff.* One adult, three adolescent, and one young male, and two adults and one adolescent female. Calcutta. Presented by Dr. J. Anderson, 1867.

*ggg.* An adult male in alcohol. Biláspur. Presented by W. T. Blanford, Esq., 1870.

*hhh.* An adult male in alcohol. Allahabad. Presented by H. Whitwell, Esq., September 1872.

*iii to mmm.* Three adult males and two adult females. Bengal. Museum Collector, 1867.

*nnn.* An adult female in alcohol. Burma. Presented by W. Theobald, Esq., 1872.

*ooo.* The skeleton of an adult. Calcutta. Presented by G. King, Esq., M.B., 1866.

*ppp & qqq.* Two males in alcohol. Gauhati, Assam. Presented by G. E. Dobson, Esq., M.B.

*rrr & sss.* Two adult males in alcohol. Dhappa. Presented by O. L. Fraser, Esq.



*ttt*. An adult female in alcohol. Allahabad. Presented by J. Cockburn, Esq.

*uuu & vvv*. Two skins of an adult male and female. Allahabad. Presented by J. Cockburn, Esq.

*www*. An adult male in alcohol. Nilgiris. Presented by W. Theobald, Esq.

*xxx & yyy*. Two skins. Chánda. Museum Collector, 1867.

*zzz*. A skin. Cachar. Museum Collector, 1867.

*aaaa*. A mounted specimen. Calcutta. A. C. Carlyle, Esq., 1863.

*bbbb*. The perfect skeleton of an adult. Calcutta. Presented by Dr. J. Anderson, 1872.

*cccc*. The perfect skeleton of a smaller specimen than the preceding. Calcutta. Presented by Dr. J. Anderson, 1872.

*dddd to hhhh*. Four females and one male in alcohol. No history.

*iii*. An adolescent male in alcohol. Chánda. Presented by W. T. Blanford, Esq., 1870.

*jjj to mmmm*. One adult male and three adult females in alcohol. Marampur, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

The fur of *iii & jjj* is reddish yellow and that of *kkk & ull* is brown.

*nnnn*. An adolescent female in alcohol. No history.

*oooo*. An adult male in alcohol. Goálpára, Assam. H. L. Houghton, Esq., 1864.

*pppp*. An adult female in alcohol. Mánbhúm. Museum Collector, 1866.

*qqqq*. Skin of a male. Gauhati, Assam. Museum Collector, 1870.

*rrrr to tttt*. Three skins of adults. Agra. Presented by the Trustees of the Riddell Museum, 1870.

*uuuu*. An adult female in alcohol. Pegu. Presented by Wm. Theobald, Esq., 1872.

*vvvv*. An adult male in alcohol. Lingsugur, Deccan. Presented by G. E. Dobson, Esq., 1875.

*wwww*. An adolescent female in alcohol. Calcutta. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 6th December 1876.

*xxxx*. An adult female in alcohol. Sind. Presented by W. T. Blanford, Esq., 9th September 1878.

*yyyy*. An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 18th January 1879.

*zzzz*. An adult female in alcohol. Calcutta. Bequeathed



to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

aaaa. An adult female in alcohol. Rániganj. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

bbbb. A female in alcohol. Annamulli forest, Madras Presidency. Presented by Lt.-Colonel Beddome, 7th September 1877.

cccc to cccc. Three skulls. Calcutta. Labelled *M. flaveolus*, Blyth.

VAR. a.

*Nycticejus heathii*, Horsfield, *Proc. Zool. Soc.* 1831, p. 113.

*Scotophilus heathii*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 260.

*Hab.* Peninsula of India (Coromandel and Malabar coasts, Rájanpur, Punjab frontier, Karáchí); Ceylon.

ffff. An adult male in alcohol, No. 91A of Blyth's Catalogue. Coromandel. Presented by Sir Walter Elliot, 1843.

gggg. The skin of an adult male, No. 91B of Blyth's Catalogue. Coromandel. Presented by Sir Walter Elliot, 1843.

hhhh. An adult female in alcohol No. 91C of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq., 1850.

iiii. Skeleton of a female, No. 91C of Blyth's Catalogue. Ceylon. Prepared, 1873.

jjjj & kkkk. Two skins, No. 91D of Blyth's Catalogue. Ceylon. Presented by E. L. Layard, Esq., 1850.

llll. A female in alcohol. Rájanpur, Punjab. Presented by W. F. Murray, Esq., M.B., 1872.

mmmm & nnnn. Two adult females in alcohol. Rájanpur. Presented by E. Sanders, Esq., M.B., 28th September 1877.

oooo & pppp. An adult female and a young male. Karáchí. By exchange with the Karáchí Museum, 19th November 1877.

qqqq. An adult and three adolescent females and three adolescent males. Karáchí. By exchange with the Karáchí Museum, 19th September 1878.

SUB-GENUS SCOTEINUS.

160. *Scotophilus emarginatus*.

*Nycticejus emarginatus*, Dobson, *Proc. As. Soc. Beng.* 1871, p. 211; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 262.

*Hab.* India, precise locality unknown.—*Dobson*.

160*a*. An adult female in alcohol. No history. *Type*.

161. *Scotophilus pallidus*.

*Scotophilus pallidus*, *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 264.

*Hab.* Peninsula of India (Míán Mir, near Lahore; Sind).—*Dobson*.

161*a*. An adult female in alcohol. Míán Mir, Lahore. Presented by J. S. Gunn, Esq., M.B., 1875. *Type*.

*b*. An adult male in alcohol. Sultan Kot, near Shikárpur, Sind. Presented by W. T. Blanford, Esq., 9th September 1878.

*c* & *d*. Two adult males. Rájanpur, Punjab. Presented by E. Sanders, Esq., M.B., 13th August 1877.

SUB-GENUS SCOTOMANUS.

162. *Scotophilus ornatus*.

*Nycticejus ornatus*, *Blyth*, *Journ. As. Soc. Beng.* vol. xx, p. 517; *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 265.

*Hab.* India (Darjeeling, Khási Hills); Burma (Ponsee and Kakhyen Hills); Yunnan (Nantin and Sanda Valley).—*Dobson*.

162*a*. A skin of an adult, No. 90B of Blyth's Catalogue. Purchased, 1858. *Type*.

*b*. An adult male in alcohol and its skulls. Manwyne, Sanda Valley, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*c*. An adult male in alcohol. Ponsee, 3,500 feet; Kakhyen Hills, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*d*. The skeleton of an adult female, procured by Dr. J. Anderson at Nantin. Presented by the 1st Expedition to Western Yunnan, 1868.

*e*. A skin. Darjeeling. Presented by J. H. Elwes, Esq., 1870.

*f* & *g*. Two skins, one immature. Darjeeling. Presented by Dr. F. Stoliczka, 1872.

*h*. A skin in alcohol. Darjeeling. Presented by W. S. Atkinson, Esq., 1872.

i. An adult male in alcohol. Head of Iril Valley, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

j. The skin of an adult. Head of Iril Valley, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 1875.

GENUS NYCTICEJUS, Rafinesque, 1819.

163. *Nycticejus crespuscularis*.

*Nycticejus crespuscularis* (Leconte), Dobson, *Cat. Chiropt. B. M.* 1878, p. 266.

*Hab.* North America, from New York to the Rocky Mountains, and southwards to New Orleans and to the West Indian Islands (Cuba).—Dobson.

163a. An adult male in alcohol. Cuba. Presented by G. E. Dobson, Esq., M.B., 1876.

GENUS HARPIOCEPHALUS, Dobson, 1876.

164. *Harpiocephalus suillus*.

*Harpiocephalus suillus* (Temm.), Dobson, *Cat. Chiropt. B. M.* 1878, p. 278.

*Hab.* Malayan Archipelago (Sumatra, Java, Flores).—Dobson.

164a. An adult in alcohol: in bad condition; skin only. Java. By exchange with the Berlin Museum, 1872.

165. *Harpiocephalus harpia*.

*Vespertilio harpia*, Temminck, *Monogr. Mammal.* t. ii, p. 219, pl. 55 (1839).

*Harpiocephalus harpia*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 281.

*Hab.* Himalaya (Darjeeling, Khási Hills); Sumatra; Java; Amboina.—Dobson.

165a. The skin of a male in bad condition, No. 106A of Blyth's Catalogue. Darjeeling. Purchased, 1851.

b. The skeleton of an adult male, No. 106B of Blyth's Catalogue. Darjeeling. Presented by W. Theobald, Esq., 1854.

c. An adult female in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1868.

d. An adult male in alcohol. Darjeeling. Presented by W. S. Atkinson, Esq., 1872.



166. *Harpiocephalus cyclotis*.

*Murina cyclotis*, Dobson, *Proc. As. Soc. Beng.* Dec. 1872, p. 210; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 282.

*Hab.* Himalaya, Darjeeling; Ceylon.—Dobson.

166*a.* An adult female in alcohol. No history. *Type*.

*b.* The skeleton of an adult. No history. Prepared in 1872.

*c.* An adult male in alcohol, No. 107A of Blyth's Catalogue. Darjeeling. Presented by Major Sherwill, 1853.

*d.* The skin of an adult. Darjeeling. Presented by J. H. Elwes, Esq., 1870.

## GENUS VESPERTILIO, Keys &amp; Blas., 1839.

## SUB-GENUS LEUCONOE.

167. *Vespertilio hasseltii*.

*Vespertilio hasseltii*, Temm., *Monog. Mammal.* t. ii, p. 225 (1835-41); Dobson, *Cat. Chiropt. B. M.* 1878, p. 291.

*Hab.* Malay Peninsula; Siam; Sumatra; Java.—Dobson.

167*a.* An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

168. *Vespertilio adversus*.

*Vespertilio adversus* (Horsfield), Dobson, *Cat. Chiropt. B. M.* 1878, p. 292.

*Hab.* Siam; Java; Borneo; Gerontalo; Celebes; Australia (Port Essington, Brisbane, Swan River, South Australia).—Dobson.

168*a.* An adult female in alcohol. Java. By exchange with the Berlin Museum, 1872.

169. *Vespertilio longipes*.

*Vespertilio macropus*, Dobson (non Gould), *Proc. As. Soc. Beng.* 1872, p. 209.

*Vespertilio longipes*, Dobson, *Proc. As. Soc. Beng.* 1873, p. 110; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 294.

*Hab.* Caves of Bhima Devi, Kashmir (elevation about 6,000 feet).

169a. One adult male in alcohol. Caves of Bhima Devi, 6,000 feet. Kashmir. Presented by Captain W. G. Murray, 1872. *Types*.

b. The skeleton of an adult without skull. Caves of Bhima Devi. Presented by Captain W. G. Murray, 1872. *Type*.

#### 170. *Vespertilio dascyneme*.

*Vespertilio dascyneme* (Boie), Dobson, *Cat. Chiropt. B. M.* 1878, p. 295.

*Hab.* From Southern England to Altai Mountains; probably generally distributed throughout the temperate regions of Europe and Asia. On the continent of Europe it is recorded from the Netherlands, France, Denmark, Prussia, Hungary, and Italy.—Dobson.

170a. An adult female in alcohol. Gallicia. By exchange with the Berlin Museum, 1872.

#### 171. *Vespertilio daubentonii*.

*Vespertilio daubentonii* (Leisler), Dobson, *Cat. Chiropt. B. M.* 1878, p. 297.

*Hab.* From Ireland to the Altai Mountains; from Finland to Sicily; from the Altai Mountains to Tenasserim; probably generally distributed throughout Europe to the temperate regions of Asia north of the Himalayas, attaining the most northerly range of all the species of the genus. Found as far north as Banffshire in Scotland.—Dobson.

171a & b. Two adult females in alcohol. Ashoun, Tenasserim. Presented by W. T. Blanford, Esq., 9th September 1878.

#### SUB-GENUS VESPERTILIO.

#### 172. *Vespertilio nipalensis*.

*Vespertilio nipalensis*, Dobson, *Proc. As. Soc. Bengal*, 1871, p. 214; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 302.

*Hab.* Katmandu, Nipal.

172a. An adult female in alcohol. Katmandu, Nipal. Museum Collector, 1871. *Type*.

#### 173. *Vespertilio emarginatus*.

*Vespertilio emarginatus*, Geoffroy, *Ann. du Muséum*, vol. viii, p. 198; Dobson, *Cat. Chiropt. B. M.* 1878, p. 303.

*Hab.* Middle and Southern Europe, extending from France and Rhenish Prussia to Italy.—*Dobson*.

VAR. *a. Vespertilio desertorum*.

*Pipistrellus lepidus*, *Blyth, Journ. As. Soc. Bengal*, vol. xiv, p. 340.  
*Vespertilio desertorum*, *Dobson, Blanford, Ann. & Mag. Nat. Hist.*  
 Nov. 1875; *Dobson, Cat. Chiropt. B. M.* 1878, p. 304.

*Hab.* Balúchistán.

173*a to e.* Five adult females in alcohol. Jálk, Balúchistán, 3,000ft. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*f.* A skull marked *V. lepidus*, Blyth. Kandahar. No history.

174. *Vespertilio nattereri*.

*Vespertilio nattereri* (*Kuhl*), *Dobson, Cat. Chiropt. B. M.* 1878, p. 307.

*Hab.* Middle Europe, from Ireland to the Ural Mountains, and from Southern Sweden to the Alps.—*Dobson*.

174*a.* An adult male in alcohol. Mulhouse. By exchange with the Berlin Museum, 1872.

175. *Vespertilio murinus*.

*Vespertilio murinus*, *Schreber, Saugeth.* i, p. 165; *Dobson, Cat. Chiropt. B. M.* 1878, p. 309.

*Hab.* Europe, Asia, Northern Africa, and Abyssinia, apparently almost limited to the Palearctic Region, and not extending further north than Southern England and Denmark.—*Dobson*.

175*a.* The skin of an adult. No. 111 A of Blyth's Catalogue. Masuri. Presented by Captain T. Hutton, 1852.

*b to d.* One adult male and two adult females in alcohol. Hungary. Presented by the Hungarian Museum, 1864.

*e.* The skin of an adult. Shiráz, Persia. Persian Boundary Commission. Museum Collector, 1871.

176. *Vespertilio murinoides*.

*Vespertilio murinoides*, *Dobson, Journ. As. Soc. Beng.* xlii, pt. ii, p. 205, pl. xiv, 1873; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 310.

*Hab.* N.-W. Himalaya (Chamba), at an elevation of 3,000 feet.—*Dobson*.



176*a*. An adult male in alcohol. Chamba. Presented by H. M. L. Hutchison, Esq., H. M.'s 14th Regt., 1873. *Type*.

177. *Vespertilio formosus*.

*Vespertilio formosus*, Hodgson, *Journ. As. Soc. Beng.* iv, p. 700 (1835); Dobson, *Cat. Chiropt. B. M.* 1878, p. 311.

*Hab.* Himalaya (Nipal, Darjeeling); India (Cháibásá, Khási Hills); China (Shanghai, Kiang, Amoy); Island of Formosa.—Dobson.

177*a*. The skin of an adult. Darjeeling. Presented by J. H. Elwes, Esq., 1870.

*b*. An adult female in alcohol. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin-Austen, 1871.

*c*. An adult female in alcohol. Goálpára, Assam. Presented by H. L. Haughton, Esq., 1870.

*d*. A skin in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871. *Type* of *V. auratus*, Dobson.

*e to i*. Four skins, Nos. 108 A to D of Blyth's Catalogue. *Types* of *K. pallida*, Blyth. Cháibásá. Presented by Lt.-Colonel S. R. Tickell, 1842.

178. *Vespertilio montivagus*.

*Vespertilio montivagus*, Dobson, *Journ. As. Soc. Beng.* 1874, pt. ii, p. 237; *ibid.*, *Cat. Chiropt. B. M.* 1878, p. 313.

*Hab.* Hotha, Yunnan.

178*a to e*. An adult male and four adult females in alcohol. Hotha, 4,500 feet, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Yunnan. *Types*.

179. *Vespertilio muricola*.

*Vespertilio muricola*, Hodgson, *Journ. As. Soc. Beng.*, vol. x, 1841, p. 908; Dobson, *Cat. Chiropt. B. M.* 1878, p. 316.

*Hab.* Himalaya (Sikkim; Láchung, 8,000 feet; Simla; Dalhousie); Tibet; India (Chutia Nágpur); Arakan (Akyab); Malay Peninsula, Sumatra, Java, Borneo, Celebes, Amboina, and probably all the islands of the Malay Archipelago, within the Oriental Region.—Dobson.

179*a*. The skin of an adult and its skull, Nos. 110 A and B of Blyth's Catalogue. Calcutta, 1844.

*b*. An adult female in alcohol. Borneo. By exchange with the Berlin Museum, 1872.

*c & d.* An adult male and female. Láchung, Sikkim. Presented by W. T. Blanford, Esq., 1872. Types of *V. blanfordi*, Dobson.

*e.* An adult female in alcohol. Simla. Presented by Moulvie Ataor Rahman, 1871.

*f.* A skin. Darjeeling. Presented by J. H. Elwes, Esq., 1871.

*g.* An adult female in alcohol. Marri. Marked *var. V. blanfordi*, Dobson. Dr. F. Stoliczka. Yárkand Expedition, 1873.

*h.* A skull, No. 110C of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1850.

180. *Vespertilio dobsoni*, *nov. sp.*

*Hab.* India (Purneah, Bengal).

180*a.* An adult female in alcohol. Purneah. Presented by S. J. Shillingford, Esq., 20th July 1875.

*b.* A young female. Purneah. Presented by S. J. Shillingford, Esq., 20th July 1875. Preserved in alcohol.

A depression between the eyes; muzzle rather broad; nose slightly projecting beyond the upper lip; the two nostrils separated from each other by a marked furrow. The ears are rounded at the tip, with hardly any concavity below the tip, the external margin being slightly convex. The tragus is long, but a little tapering to its point, rounded off into the straight, inner margin from the outer margin, which is convex, but deeply concave at its base. A small anteriorly curved lobule at its base. The first finger is about one-fourth as long as the fore arm and is strongly developed. The feet are large, with rather powerful toes. The wing membrane is attached to the base of the toes; the wing membrane from the elbow forwards is brownish black, profusely spotted with yellow, much the same as in *K. picta*, while in the remainder of the membrane the yellow spots are confluent in lines from the elbow and humerus to the leg, almost replacing the hair, which is confined to narrow lines. The outer femoral membrane is yellowish orange, with parallel interrupted lines passing from the tail to the legs; fore arm and fingers yellow. The face is clad as in *V. formosus*, and the fur is distributed on the membranes in the same way as in that species. Dentition the same as in *V. formosus*, only the teeth are much larger in individuals of the same sex.

The measurements of an adult female preserved in alcohol.



Tip of snout to vent 2".50, head 1".89, tail 2", ear (attachment behind mouth) 0".7, tragus 0".35, fore arm 2".15, index finger 2".1, 2nd finger 3".61, 3rd finger 3", 4th finger 2".9, thumb 0".50, tibia 1", foot 0".6.

This species is distinguished from *V. formosus* by its greater size; by its much broader muzzle; larger teeth; broader and less pointed tragus; stronger and longer thumb; much larger feet; and by the uniform yellow dotting of the whole of the wing membrane.

#### 181. *Vespertilio mystacinus*.

*Vespertilio mystacinus*, *Leisler, Kuhl. Deutsch. Flederm. Ann. Wetterau. Naturk.* iv, p. 55 (1819); *Dobson, Cat. Chiropt. B. M.* 1878, p. 314.

*Hab.* Palaearctic Region; Europe (from Finland to Spain; from Ireland to Middle Russia); in Asia, hitherto found in Syria, at Peking, and in the Himalayas only.—*Dobson*.

181a. An adult female in alcohol. Galicia. By exchange with the Berlin Museum, 1872.

#### GENUS KERIVOULA, Gray, 1842.

#### 182. *Kerivoula picta*.

*Vespertilio pictum*, *Pallas, Spicil. Zoolog.* fasc. iii, p. 7.  
*Kerivoula picta*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 332.

*Hab.* Peninsula of India; Ceylon; Burma; Sumatra; Java. Probably distributed generally throughout the Oriental Region.—*Dobson*.

182a. A mounted specimen, No. 109B of Blyth's Catalogue. Jaipur. Presented by J. Payter, Esq., 1852.

b. A skin, No. 109A of Blyth's Catalogue; in bad condition. Ceylon. Presented by R. Templeton, Esq.

c. A skin, No. 109C of Blyth's Catalogue; imperfect. Ceylon. Presented by Dr. E. F. Kelaart, 1851.

d. A skin, No. 109D of Blyth's Catalogue. Java. Presented by the Batavian Society, 1844.

e. An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 1869.

f. The skeleton of an individual from Calcutta. Presented by Dr. J. Anderson.

g. The skin of an adult. Darjeeling. Bequeathed to the Asiatic Society in Bengal by Dr. F. Stoliczka. 15th December 1875.



*h & i.* An adult male and female in alcohol. Dacca. Presented by T. Blisset, Esq., 1875.

*j.* A stuffed specimen in very bad condition from the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

183. *Kerivoula hardwickii.*

*Vespertilio hardwickii*, *Horsfield, Zool. Resch. in Java* (1825).

*Kerivoula hardwickii*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 335.

*Hab.* Peninsula of India (Sibságar, Assam; Shihong, Khási Hills); Camboja; Java; Borneo; Duke of York Island.—*Dobson.*

183*a.* An adult male in alcohol. Java. By exchange with the Berlin Museum, 1872.

*b & c.* An adult male and female in alcohol. Sibságar, Assam. Presented by S. E. Peal, Esq., 1872.

*d.* An adult male in alcohol. No history.

184. *Kerivoula lanosa.*

*Kerivoula lanosa* (*Smith*) *Dobson, Cat. Chiropt. B. M.* 1878, p. 340.

*Hab.* S.-E. Africa (Shupanga, near the Zambesi River, East Coast of Cape Colony).—*Dobson.*

184*a.* An adult female in alcohol. Zambesi. By exchange with the British Museum, 6th September 1877. *K. nidicola*, Kirk.

III.—GROUP MINIOPTERI.

GENUS MINIOPTERUS, Bonaparte, 1837.

185. *Miniopterus schreibersii.*

*Vespertilio schreibersii*, *Natterer, in Kuhl, Deutschl. Flederm. Ann. Wetterau.* iv, p. 41 (1819).

*Miniopterus schreibersii*, *Dobson, Cat. Chiropt. B. M.* 1878, p. 348.

*Hab.* Southern Europe and Asia, Africa, Madagascar, and Australia. In Europe, inhabiting Spain, Switzerland, Lower Austria, Italy, and Sicily; in Asia, Syria, India, Ceylon, Burma, Southern China (Amoy), Japan, Philippine Islands; extending through the Malay Archipelago to Australia; probably generally distributed throughout Africa and Madagascar.—*Dobson.*

185*a.* An adult male in alcohol. North Italy. By exchange with the Berlin Museum, 1872.

*b to cc.* Thirteen adult and four adolescent males, and eleven adult females in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the Second Expedition to Western Yunnan, 1875.

VAR. *a.*

*Miniopterus pusillus*, Dobson, *Monogr. As. Chiropt.* 1876, p. 162.

*Miniopterus schreibersii* var. *a*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 351.

*Hab.* India (Madras); Andaman and Nicobar Islands, Philippine Islands (Erumango).—Dobson.

*dd.* An adult female in alcohol. Nicobars. Presented by Dr. F. Stoliczka, 1871. *Type.*

*ee to gg.* Three adult males in alcohol. Nicobars. Presented by V. Ball, Esq., 1876.

*hh to vv.* Nine adult males and six adult females in alcohol. Katchal, Nicobars. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka. 15th December 1875.

*ww.* An imperfect skeleton from the Nicobars. Presented by Dr. F. Stoliczka, 1871.

#### IV.—FAMILY EMBALLONURIDÆ.

##### I.—SUB-FAMILY EMBALLONURINÆ.

##### 1.—GROUP EMBALLONURÆ.

GENUS TAPHOZOUS, Geoff., 1812.

SUB-GENUS TAPHOZOUS.

##### 186. *Taphozous melanopogon*.

*Taphozous melanopogon*, Temm., *Monog. Mammal.*, t. ii, 1835-41, p. 287; Dobson, *Cat. Chiropt. B. M.* 1878, p. 380.

*Hab.* India (Lower Bengal, Madras, Malabar Coast); Burmah; Pinang; Pulo Tickus; Cochin-China; Java; Borneo; Philippine Islands.—Dobson.

*186a to c.* Three adult males in alcohol. No history.

*d to g.* Four adult females in alcohol. Jashpur, Chutia Nágpur. Presented by W. T. Blanford, Esq., 1871.

*h.* An adult male in alcohol. Amherst, Tenasserim. Presented by Dr. J. Anderson, 1872.

- i.* An adult male skeleton. No history.  
*j to m.* One adult male, and three adult females in alcohol; No. 5 Cave, Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.  
*n.* A skin. Sambalpur. Presented by V. Ball, Esq., 16th June 1877.  
*o & p.* An adult male and female in alcohol. Trichinopoly. Presented by Lt.-Colonel Beddome, 19th November 1877.

187. *Taphozous theobaldi.*

*Taphozous theobaldi*, *Proc. As. Soc. Beng.*, Aug. 1872, p. 152; *Cat. Chiropt. B. M.* 1878, p. 381.

*Hab.* Tenasserim Province.

- 187*a & b.* An adult male and female in alcohol. Tenasserim. Presented by W. Theobald, Esq., 1855. *Type.*  
*c.* An adult male in alcohol. Forearm 3"10. Bushire. By exchange with the Karáchi Museum, 29th April 1879.

188. *Taphozous longimanus.*

*Taphozous longimanus*, *Hardwicke, Linn. Trans.* xiv, 1825, p. 525; *Dobson, Cat. Chiropt. B. M.* 1878, p. 384.

*Hab.* Peninsula of India, Ceylon; Burma. Abundant about Calcutta, and in all the southern parts of the Indian Peninsula; not yet recorded from Northern India nor from the Himalayas.—*Dobson.*

188*a to f.* Six skins, Nos. 85 A to F of Blyth's Catalogue. Calcutta. No history.

*g.* An imperfect skeleton, No. 85M of Blyth's Catalogue.  
*h.* One skin, No. 85J of Blyth's Catalogue. Travancore. Presented by Dr. Coles, 1841, labelled *T. brevicaudus*.

*i & j.* A skull labelled *Taphozous cantori*, Blyth, and *T. brevicaudus*.

*k to o.* Two adult and one young male, the latter the young of *m*, and two adult females in alcohol. No. 85G of Blyth's Catalogue. Rangoon. Presented by Sir Joseph Fayrer, M.D., &c., 1852.

*p.* One skin, No. 85I of Blyth's Catalogue. Ceylon. Presented by Dr. E. F. Kelaart, 1841.

*q.* A skin. Chánda. Museum Collector, 1867.

*r.* One adult male in alcohol. Presented by Dr. J. Anderson, 1870.



s. An adult male in alcohol. Singbhum. Presented by V. Ball, Esq., 1870.

t. An adult male in alcohol. Bilaspur, Central Provinces. Presented by W. T. Blanford, Esq., 1871.

u to w. Two adult males and one adult female in alcohol. Pegu. Presented by W. Theobald, Esq., 1872.

x & y. An adult male in alcohol (Pegu), and an adult female (Calcutta). Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

z. An adult female in alcohol. Calcutta. Presented by Dr. J. Anderson, 19th December 1876.

aa. An adult male in alcohol. Calcutta. Presented by O. L. Fraser, Esq., 22nd February 1881.

#### 189. *Taphozous nudiventris*.

*Taphozous nudiventris*, *Cretschmar*, in *Rüpp. Atlas. Reise. nördl. Afrika. Säugeth.* 1826, p. 70, fig. 276; *Dobson, Cat. Chiropt. B. M.* 1878, p. 387.

*Hab.* Africa (North Africa, Egypt, Nubia, Gambia); Asia Minor (Palestine, Euphrates).—*Dobson*.

189a to p. Eight adult males, and eight adult females in alcohol. Ruins of Karnak, Upper Egypt, 23rd March 1880. Collected, and presented by Dr. J. Anderson, 18th January 1881.

#### VAR. a.

*Taphozous kachhensis*, *Dobson, Journ. As. Soc. Beng.* 1872, p. 211; *ibid., Cat. Chiropt. B. M.* 1878, p. 388.

*Hab.* Kachh; North-West India.

i. An adult male in alcohol. Kachh. Presented by Dr. F. Stoliczka, 1872. *Type*.

j. A male in alcohol. Karáchi. By exchange with the Karáchi Museum, 19th September 1878.

#### SUB-GENUS TAPHONYCTERIS.

#### 190. *Taphozous perforatus*.

*Taphozous perforatus*, *Geoff., Descript. de l'Egypte*, t. ii, p. 126; *Dobson, Cat. Chiropt. B. M.* 1878, p. 383.

*Hab.* Egypt.

190a to c. Three males in alcohol. Temple of Karnak, Upper Egypt. Collected, and presented by Dr. J. Anderson, 17th January 1881.

191. *Taphozous saccolæmus*.

*Taphozous saccolæmus*, *Temminck, Monogr. Mammal.*, vol. ii, p. 285; pl. 60; *Dobson, Cat. Chiropt. B. M.* 1878, p. 388.

*Hab.* Lower Bengal (Sylhet); Ceylon; Burma; Malay Peninsula; Sumatra; Java.—*Dobson*.

191*a*. One skin; No. 84A of Blyth's Catalogue. Southern India. Presented by Sir Walter Elliot, 1843.

*b*. A skin; No. 84B of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*c*. An adult female in alcohol. Sylhet. Presented by E. B. Baker, Esq., 1872.

192. *Taphozous affinis*.

*Taphozous affinis*, *Dobson, Ann. Mag. Nat. Hist.* 1875, vol. xvi, p. 232; *Dobson, Cat. Chiropt. B. M.* 1878, p. 389.

*Hab.* Labuan Island; Sumatra.

192*a*. An adult in alcohol. By exchange with the Berlin Museum, 6th September 1877.

## II.—GROUP RHINOPOMATA.

## GENUS RHINOPOMA, Geoff, 1812,

193. *Rhinopoma microphyllum*.

*Rhinopoma microphyllum* (Geoffr.), *Dobson, Cat. Chiropt. B. M.* 1878, p. 400.

*Hab.* Africa (Egypt, Kordofan); Asia Minor (Palestine); Indian Peninsula generally; Burma.—*Dobson*.

193*a* & *b*. Two adult males in alcohol, Nos. 83 A and B of Blyth's Catalogue. Agra. Presented by Major Wroughton, 1844.

*c* & *d*. Two skins, Nos. 83 C and D of Blyth's Catalogue. Agra. Presented by Major Wroughton, 1844.

*e*. A skin, No. 83E of Blyth's Catalogue. Presented by A. D. Bartlett, Esq.

*f*. A skeleton, No. 83F of Blyth's Catalogue. Agra. Presented by Major Wroughton, 1844.

*g* & *h*. Two skulls. No history.

*i* & *j*. Two skins. Agra. Presented by the Trustees of the Riddell Museum, 1869.

*k & l.* Two adult males in alcohol. Kachh. Presented by Dr. F. Stoliczka, 1872. Testicles enormously enlarged, and a layer of fat at their base.

*m to q.* Two adult males and three adult females. Fatehpur Sikri. Presented by Dr. J. Anderson, 19th November 1877.

## II.—SUB-FAMILY MOLOSSINÆ.

### I.—GROUP MOLOSSI.

#### GENUS CHEIROMELES, Horsfield, 1824.

##### 194. *Cheiromeles torquatus*.

*Cheiromeles torquatus*, Horsfield, *Zool. Resch. in Java*, pl. (P); Dobson, *Cat. Chiropt. B. M.* 1878, p. 405.

*Hab.* Malay Peninsula (Singapore); Sumatra; Java; Borneo.—Dobson.

194a. Two skins of an adult, No. 86 A of Blyth's Catalogue. Java. Presented by the Batavian Society, 1845.

*b.* A stuffed specimen. Siam. Collected by Finlayson. From the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

#### GENUS NYCTINOMUS, Geoffroy, 1812.

##### SUB-GENUS NYCTINOMUS.

##### 195. *Nyctinomus cestonii*.

*Dinops cestonii*, Savi, *Nuov. Giorn. de' Letter.* p. 230, 1825.

*Nyctinomus cestonii*, Dobson, *Cat. Chiropt. B. M.* 1878, p. 423.

*Hab.* Europe (Madeira, Switzerland, Italy, Sicily, Greece); Africa (Egypt, Nubia); Asia (Amoy, China).—Dobson.

195a. An adult male in alcohol, No. 87A of Blyth's Catalogue. Amoy, China. Presented by R. Swinhoe, Esq., 1860. Type of *N. insignis*, Blyth.

##### 196. *Nyctinomus tragatus*.

*Nyctinomus tragatus*, Dobson, *Journ. As. Soc. Eng.* vol. xliii, 1874, p. 143; *Cat. Chiropt. B. M.* 1878, p. 424.

*Hab.* Peninsula of India (Rájanpur, N. W. Frontier; Jashpur, near Chutia Nágpur; Calcutta).—Dobson.



196*a*. An adult male in alcohol, No. 88 F of Blyth's Catalogue. Calcutta. No history. *Type*.

*b*. An adult male in alcohol. Jashpur, west of Chutia Nágpur. Presented by W. T. Blandford, Esq., 1871.

*c*. An adult female in alcohol. Rájanpur, Punjab frontier. Presented by W. F. Murray, Esq., M.B., 1872.

#### 197. *Nyctinomus plicatus*.

*Vespertilio plicatus*, *Buchanan-Hamilton*, *Trans. Linn. Soc.* 1800, vol. v, 1880, p. 261, fig.

*Nyctinomus plicatus*, *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 425.

*Hab.* Peninsula of India (Calcutta, Ludhiána, Agra, Madras); Sumatra; Java; Borneo; Malay Peninsula (Singapore); Philippine Islands.—*Dobson*.

197*a*. An adult male in alcohol, No. 88 E of Blyth's Catalogue. No history.

*b* & *c*. Two skins, Nos. 88 A & B of Blyth's Catalogue. Ludhiána. Presented by Captain Boys, 1845.

*d* & *e*. Two skins, Nos. 88 C & D of Blyth's Catalogue. Calcutta.

*f*. A skeleton, No. 88 G of Blyth's Catalogue. No history.

*g*. A skin in very bad condition, No. 88 H of Blyth's Catalogue. Dark specimen (*N. tenuis*, Horsfd), old collection.

*h* to *j*. Three skins. Agra. Presented by the Trustees of the Riddell Museum, 1869.

*k*. An adult male, and its viscera. Indian Museum. Dr. J. Anderson, 16th December 1876.

*l*. An adult female in alcohol. Allahabad. Presented by John Cockburn, Esq., 20th March 1877.

#### 198. *Nyctinomus johorensis*.

*Molossus* (*Nyctinomus*) *johorensis*, *Dobson*, *Proc. As. Soc. Beng. Jan.* p. 22, 1873.

*Nyctinomus johorensis*, *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 432.

*Hab.* Malay Peninsula (Johore).

198*a*. An adult male in alcohol. Johore, Malayan Peninsula. Presented by J. Wood-Mason, Esq., 1872. *Type*.

#### 199. *Nyctinomus braziliensis*.

*Nyctinomus braziliensis* (*Is. Geoff. St. Hil.*), *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 437.

*Hab.* Warmer regions of North and South America and their islands, extending from California to Chili; apparently everywhere distributed throughout the tropical and sub-tropical parts of America, where it is probably the most common species of the genus, as it has the widest range.—*Dobson*.

192a. An adult female in alcohol. Mexico. Presented by G. E. Dobson, Esq., M.B., 1876.

## VI.—FAMILY PHYLLOSTOMIDÆ.

### I. SUB-FAMILY PHYLLOSTOMINÆ.

#### L—GROUP STENODERMATA.

#### GENUS ARTIBEUS, Leach, 1822.

##### SUB-GENUS ARTIBEUS.

#### 200. *Artibeus perspicillatus*.

*Artibeus perspicillatus* (*Linnaeus*), *Dobson*, *Cat. Chiropt. B. M.* 1878, p. 519.

*Hab.* Mexican, Antillean, and Brazilian Sub-Regions, apparently generally distributed throughout the two first named sub-regions, but in many parts of the Brazilian sub-region its place appears to be taken by *A. planirostris*.—*Dobson*.

200a & b. An adult male and female. Demerara. Presented by G. E. Dobson, Esq., M.B., 1874.

## IV.—ORDER INSECTIVORA.

### I.—FAMILY GALEOPITHECIDÆ.

#### GENUS GALEOPITHECUS, Pallas, 1780.

#### 201. *Galeopithecus volans*.

*Lemur volans*, *Lin.*, *Syst. Nat.* ed. 12th, 1766, p. 45.

*Galeopithecus volans*, *Pallas*, *Act. Acad. Petrop.* t. iv, 1780, p. 280, tab. 8; *Shaw*, *Genl. Zool.* vol. 1, pt. 1, 1800, p. 116, pls. 38 and 39.

- Galeopithecus rufus*, *Geoff. Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 19; *Geoff., Cours.* 12<sup>me</sup> *Lec.* 1829, p. 37; *Desm., Mammif.* 1822, p. 108.
- Galeopithecus rufus, variegatus et ternatensis*, pp., et 38, *Geoff., Cours.* 12<sup>me</sup> *Lec.* 1828, p. 37; *Desm., Mammif.* 1822, p. 108.
- Galeopithecus temminckii*, *Waterhouse, Proc. Zool. Soc. Lond.*, 1838, p. 119; *Trans. Zool. Soc.* vol. ii, p. 335, pl. 58, fig. 2.
- Galeopithecus rufus, undatus et macrurus*, *Wagner, Schreber, Säugeth. Suppl. Bd. i*, 1880, pp. 324, 326 et 327.

*Hab.* Malacca, Sumatra, and Borneo.

201*a*. Stuffed specimen, No. 49A of Blyth's Catalogue. Malacca. Presented by R. W. G. Frith, Esq., 1844.

*b*. A flat skin, mounted skeleton, and nearly mature fœtus, in alcohol, of an adult female. Sinkip Island, Sumatra. Museum Collector, 14th May 1874.

*c to e*. Three skulls, Nos. 49 C, D, & E of Blyth's Catalogue. Malacca. No history.

*f*. Skin of a young animal, much variegated with grey, brownish and black, interspersed with white spots. Perak, Malayan Peninsula. Presented by Mrs. R. Allen, Calcutta, 6th April 1877.

*g to i*. The skins of two males and one female. The males are dusky brown above, variegated with dark brown, and spotted with white. From the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

*j & k*. Two skulls from the Indian Museum, London. Presented by the Trustees of the British Museum, 13th April 1880.

## II.—FAMILY TUPAIIDÆ.

### I.—SUB-FAMILY TUPAIINÆ.

GENUS TUPAIA, Raffles, 1820.

#### 202. *Tupaia ellioti*.

*Tupaia ellioti*, *Waterhouse, Proc. Zool. Soc.* 1849, pp. 106 et 108, pl. xiii; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 82; *Jerdon, Mamm. of Ind.* 1867, p. 64; *Ball, Proc. As. Soc. Beng.* 1874, p. 95; *Anderson, Anat. & Zool. Resch., &c.*, 1878, p. 124, pl. vii, figs. 12 and 13 (skull).

*Hab.* Southern and Central India (Madras, Gondulpudu, Godáviri Valley) and extending northwards to Cuttack and to the Karakpur Hills, Moughyr, North-Western Bengal.



202*a* to *c*. Two stuffed adults and one adolescent, and the skulls of *b* and *c*, Nos. 241 A, B, & C of Blyth's Catalogue. Madras. Presented by Sir Walter Elliot, 1851.

*d* to *f*. Two adult males and one female in alcohol. Karakpur Hills, Monghyr. Presented by E. Lockwood, Esq., C.S., 1874.

*g*. A skull. Karakpur Hills, Monghyr. Presented by E. Lockwood, Esq., C.S., 1874.

*h*. Skeleton of an adult. Gondulpudu, Godávári Valley. Presented by W. T. Blandford, Esq., 27th July 1871.

*i*. Contents of the stomach of one of the foregoing individuals from Monghyr, consisting chiefly of the remains of small beetles.

*j* to *l*. Two adult males and one adult female in alcohol. Monghyr. Presented by the Zoological Gardens, 1st and 12th May 1880.

### 203. *Tupaia belangeri*.

*Tupaia* du Pégou, *Is. Geoff. St. Hil., Zool. de Bélanger*, 1834, p. 103, tab. 4.

*Cladobates belangeri*, *Wagner, Schreber, Säugeth.* 1842, Suppl. pt. ii, p. 42; op. cit. Bd. V, 1856, p. 527.

*Tupaia belangeri*, *Anderson, Anat. & Zool. Resch. &c.* 1878, p. 126, pl. vii, figs. 6 and 7 (skull).

*Tupaia ferruginea*, *Blyth (partim), Cat. Mamm. As. Soc. Mus.* 1863, p. 81.

*Tupaia peguana*, *Jerdon, Mamm. Ind.* 1867, p. 65.

*Hab.* Nepal; Eastern Himalaya (Kurseong, Darjeeling); Assam; Khási Hills; Arakan, Island of Prepara, and Burma, and North Tenasserim.

203*a* & *b*. Two stuffed adults and the skulls; Nos. 240 G and H of Blyth's Catalogue. Arakan. Presented by Sir Arthur P. Phayre, 1844.

*c*. A skull, No. 240 I of Blyth's Catalogue. Arakan. Presented by Sir Arthur P. Phayre, 1844.

*d*. An adult female in alcohol, No. 240 J of Blyth's Catalogue. Pegu. Presented by Major Berdmore, 1856.

*e*. The skeleton of a specimen sent alive from Chárápunjí, No. 240 K of Blyth's Catalogue. Presented by R. W. G. Frith, Esq., 1851.

*f*. An adult male in alcohol. No history.

*g*. A mounted skeleton, prepared from a specimen belonging to the Asiatic Society of Bengal. No history.

*h*. A skeleton of an adult. No history.

*i*. An adolescent male in alcohol without its skull. No history.

*j.* The skin and skull of an adult male. Cachar. Museum Collector, 1868.

*k.* The skin of an adolescent female, and its skull. Darjeeling. Presented by J. H. Elwes, Esq., 1871.

*l.* A young female in alcohol. Chárápunjí. Presented by Lieutenant J. H. Bourne, 7th July 1871.

*m to p.* Four skins. Arakan and Lower Pegu. Captain F. H. Hood and Museum Collector, 1872.

*q to z.* Five adult males, and four adult females in alcohol. Arakan and Lower Pegu. Presented by Captain F. H. Hood, and Museum Collector, 1872.

*aa & bb.* Three skulls. Arakan and Lower Pegu. Presented by Captain F. H. Hood, 1872.

*cc.* A skin. No history.

*dd.* The skin of an adult. Borpani, Dikrang, Assam. Daffa Expedition, 1875. Presented by Lieut.-Colonel H. H. Godwin-Austen.

*ee.* The skin of an adult. Assam. Presented by A. W. Chennell, Esq., 1875.

*ff.* An adult female in alcohol. Tsagain, Upper Burma. Dr. J. Anderson. Presented by the 2nd Expedition to Western Yunnan, 1875.

*gg.* Skin of an adult male. Assam. Purchased, 1876. An orange mesial line along the ventral aspect.

*hh.* The skin of an adult. This specimen is darker than the generality of individuals from the mainland and approaches in this respect to *T. ferruginea*. Island of Preparis, off the coast of Arakan. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

*ii.* An adult in alcohol. Amherst. Presented by J. Armstrong, Esq., M.B., 29th August 1877.

*jj & kk.* Two skulls without any history.

*ll.* A skeleton of an adolescent. No history.

#### 204. *Tupaia chinensis*.

*Tupaia chinensis*, Anderson, *Anat. & Zool. Resch. &c.*, 1878, p. 129, pl. vii, figs. 8 and 9.

*Hab.* China (high country of Western Yunnan).

204*a.* An adolescent male in alcohol, and its skull. Ponsee, Kakhien Hills, 3,185 ft., Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.

*b & c.* One skin of an adult and its skull. Muangla, Sanda Valley, Yunnan, 2,400 ft. Dr. J. Anderson. Presented by the 1st Expedition to Western Yunnan, 1868.



205. *Tupaia ferruginea*.

Sorex-glis, *Diard & Duvaucel, As. Resch.* vol. xiv, 1822, pp. 471 et 475, pl. ix.

*Tupaia ferruginea* *Raffles, Linn. Trans.* vol. xiii, p. 256, 1822; *Blyth's Cat. Mamm. As. Soc. Mus.* 1863 (*partim*), p. 81; *Anderson, Anat. & Zool. Resch. &c.* 1878, p. 130, pl. vii, figs. 4 and 5 (skull).

*Hab.* Malayan Peninsula, Sumatra, Borneo, and Java.

205*a*. A stuffed adult and its skull, No. 240 A of Blyth's Catalogue. Penang. Presented by the Rev. J. Barbe, 1846.

*b*. A stuffed young animal and its skull, No. 240B of Blyth's Catalogue. Penang. Presented by the Rev. J. Barbe, 1846.

*c*. A stuffed adult and its skull, No. 240C of Blyth's Catalogue. Malacca. Presented by the Rev. F. W. Lindstedt, 1846.

*d*. A stuffed young animal and its skull, No. 240D of Blyth's Catalogue. Presented by Major Berdmore, 1856.

*e*. A stuffed young animal and its skull, No. 240E of Blyth's Catalogue. Mergui. Presented by Major Berdmore, 1856.

*f*. A preparation showing the teeth removed from the skull, and set in position, in wax, illustrating the differences between the deciduous and permanent teeth in both jaws, before any of the deciduous teeth are lost. Prepared from the skull of No. 240F of Blyth's Catalogue, from Mergui. Presented by Major Berdmore, 1856.

*g*. A skull from Mergui. Presented by Major Berdmore, 1856. The roots of the teeth of both jaws exposed to show the relations between the permanent and deciduous teeth.

*h*. First, second, and third molars of the right upper jaw; second and third right upper deciduous premolars; and second and third deciduous premolars, right lower jaw.

206. *Tupaia malaccana*.

Cerp ou Banxring, *F. Cuv., Mammif.* t. ii, livr<sup>e</sup> xxxv, Decembre 1821.

*Tupaia javanica*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 82.

*Tupaia malaccana*, *Anderson, Anat. & Zool. Resch.* 1878, p. 134, pl. vii, figs. 16 and 17 (skull).

*Hab.* Malacca.

206*a* & *b*. Two stuffed adults and two skulls, Nos. 242 A and B. Malacca. Presented by R. W. G. Frith, Esq., 1846.



207. *Tupaia tana*.

*Tupaia tana*, *Raffles, Trans. Linn. Soc.* vol. xiii, 1822, p. 257; *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 81; *Anderson, Anat. & Zool. Resch. &c.* p. 136, 1878, pl. vii, figs. 1 and 2 (skull).

*Hab.* Borneo.

207*a*. A stuffed adult male, No. 239A of Blyth's Catalogue. Sumatra. Presented by the Batavian Society, 1845.

208. *Tupaia nicobarica*.

*Cladobates nicobaricus*, *Zelevor, Reise der Novara Säugeth.* Bd. i, p. 17, pls. i et ii, 1869.

*Tupaia nicobarica*, *Anderson, Anat. & Zool. Resch. &c.* p. 136, pl. vii, fig. 3 (skull).

*Hab.* Nicobars.

208*a*. The skin of an adolescent male. Great Nicobar Island. By exchange with V. Ball, Esq., Sept. 1876.

*b*. An adult male in alcohol. Nicobar Islands. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 15th December 1875.

## II.—SUB-FAMILY HYLOMINÆ.

## GENUS HYLOMYS, S. Muller.

209. *Hylomys peguensis*.

*Hylomys peguensis*, *Blyth, Journ. As. Soc. Beng.* vol. xxxviii, 1859, p. 294; *Cat. Mamm. As. Soc. Mus.* 1863, p. 82; *Anderson, Trans. Zool. Soc. Lond.* vol. viii, 1874, p. 453, pl. lxiv; *Anat. & Zool. Resch. &c.* 1878, p. 138, pl. vi.

*Hab.* Kakhien Hills, Western Yunnan; Tenasserim, Java and Borneo.

209*a*. An adult female in alcohol, No. 243A of Blyth's Catalogue. Presented by Major Berdmore, 1858.

*b*. The mounted skeleton of an adult. Ponsee, Kakhien Hills, Yunnan. Dr. J. Anderson. Presented by the 1st Expedition to Yunnan, 1868. Described, and figured in the Transactions of the Zool. Soc., vol. viii, p. 453.

## III.—FAMILY ERINACEIDÆ.

## I.—SUB-FAMILY GYMNURINÆ.

GENUS GYMNURA, Horsfield, Vigors, 1827.

210. *Gymnura rafflesii*.

*Viverra gymnura*, *Raffles*, *Trans. Linn. Soc.* vol. xiii, 1822, p. 271.  
*Gymnura rafflesii*, *Horsfield and Vigors*, *Zool. Journ.* vol. iii, 1828,  
 p. 246, tab. 8; *Wagner, Schreb. Säugeth.* Suppl. Bd. ii, 1841, p. 46;  
*ibid.*, Suppl. Bd. v, 1856, p. 534; *Müller & Schlegel, Verhandl.* 1,  
 p. 26, 1839-43; *Cant. Journ. As. Soc.* vol. xv, 1846, p. 190; *Owen*,  
*Odontog.* p. 419, pl. 3, fig. 4; *Blyth, Cat. Mamm. As. Soc. Mus. Cal.*  
 1863, p. 81; *Gray, Cat. Bones Mamm., Coll. B. M.* 1862, p. 117.  
*Echinosorex rafflesii*, *Blainv., Ost. Atl.* t. i, *Insectiv.* pl. 6. (skull);  
 pl. 10 (teeth).

*Hab.* Malayan Peninsula (Sumatra, Borneo, and other Islands).

210a. A stuffed adolescent and its skull, No. 238A of Blyth's Catalogue. Malacca. Presented by C. Hufnagle, Esq., 1846.

VAR. *candida*, Gunther.

b. A stuffed adult and its skull. Sarawak, Borneo. Presented by W. Rutledge, Esq., 4th June 1869.

## II.—SUB-FAMILY ERINACEINÆ.

GENUS ERINACEUS, Linn., 1766.

211. *Erinaceus europæus*, Linn.

*Erinaceus europæus*, *Linn. Syst.* 12th ed. 1766, vol. i, p. 75.  
*Erinaceus vulgaris*, *Blyth, Cat. Mamm. As. Soc. Mus.* 1863, p. 80.

*Hab.* Europe.

211a & b. A stuffed adult and adolescent, Nos. 235 A and B of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1843.

c & d. Two skulls, Nos. 235 C and D of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1843.

e. A mounted skeleton of an adult, No. 235E of Blyth's Catalogue. Presented by J. H. Gurney, Esq., 1860.

*f* & *g*. Two glass tubes containing two spines, and sections of the spines of this species. Dr. J. Anderson, 1878.

*h*. An adult male in alcohol. England. Presented by W. Rutledge, Esq., 17th December 1881.

## 212. *Erinaceus micropus*.

*Erinaceus auritus*, Pearson, *Journ. As. Soc. Beng.* vol. v, 1836, p. 191.

*Erinaceus collaris*, Gray, *List. Mamm. B. M.* 1843, p. 81 (*partim*).

*Erinaceus micropus*, Blyth, *Journ. As. Soc. Beng.* vol. xv, 1846, p. 170, (*partim*); *ibid.*, *op. cit.* vol. xxii, 1853, p. 582; *ibid.*, *Cat. Mamm. Mus. As. Soc. Beng.* 1863, p. 80; Wagner, *Schreb. Säugeth. Suppl.* Bd. v, 1855, p. 591; Stoliczka, *Journ. As. Soc. Beng.* vol. xli, 1872, p. 225.

*Erinaceus nudiventris*, Horsfield, *Cat. Mamm. East. Ind. Cos. Mus.* 1851, p. 136.

*Erinaceus* (*Hemiechinus*) *micropus* Fitzinger, *Sitzungshte. der K. Akad. Wissensch. Wien*, Bd. lx, pl. 1, 1867, p. 875 (*partim*); Anderson, *Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1878, p. 200, pl. v<sup>a</sup>, figs. *a* to *d*.

*Hab.* Southern India.

212*a*. A stuffed adult, No. 237A of Blyth's Catalogue, and its skull B. Presented by W. H. Smoult, Esq., 1836.

*b*. A skull, No. 237C of Blyth's Catalogue. Presented by Sir Walter Elliot, Madras, 1843.

*c*. An adolescent male in alcohol, and its skull. Coimbatore. Presented by the Madras Museum, 23rd December 1876.

*d*. A young animal in alcohol. Coimbatore. Presented by the Madras Museum, 13th December 1876.

*e* to *g*. Three adult males in alcohol and the skulls of *f* and *g* (the former figured J. A. S. B. vol. xlvii, pt. ii, 1878, pl. v A, figs. *a* to *d*). Trichinopoly. Presented by the Zoological Gardens, 5th December 1877.

*h*. An adult male in alcohol. Coimbatore. Presented by the Zoological Gardens, 5th December 1877.

*i*. Two tubes containing spines, and sections of spines of this species.

## 213. *Erinaceus pictus*.

? *Erinaceus indicus*, Royle, *Ill. Ind. Zool.* 1839, p. 6; not described.

*Erinaceus collaris*? Hutton, *Journ. As. Soc. Beng.* vol. xiv, 1845, p. 351, 3rd specimen, *partim*; Blyth, *l. c.* p. 352, footnote; *ibid.*, *op. cit.* vol. xxii, 1853, p. 582 (*partim*).

*Erinaceus micropus*, Blyth, *Journ. As. Soc.* vol. xv, 1846, p. 170 (*partim*).

*Erinaceus* (*Hemiechinus*) *micropus*, Fitzinger, *Sitzungshte. der K. Akad. Wissensch. Wien*, Bd. lvi, pt. i, 1867, p. 875 (*partim*).

*Erinaceus* (*Hemiechinus*) *pictus*, Stoliczka, *Journ. As. Soc. Beng.* vol. xli, 1872, p. 223.



*Erinaceus pers. Asiaticus*, Journ. As. Soc. Beng. vol. xviii, pt. i, 1873, p. 251, pl. i.

*Red. Western and North-Western India to Hind.*

*Stt. & J. Three adults, two adolescents, and three younger individuals, and the skulls of a, b, c, d, e, f, and g. Agn. District. Presented by the Trustees of the British Museum, 11th April 1873.*

*i. One skull. Agn. District. Presented by the Trustees of the British Museum, Agn. April 1874.*

*j. A skull. Presented by W. Riedel, Esq., 11th March 1874.*

*k. The fat skin and skeleton of an adult male. North-Western Province. Presented by W. Riedel, Esq., 30th December 1874.*

*l. An adult female in alcohol. Alwar. Presented by Major T. Cadell, V.C., 11th May 1877.*

*m. A young female in alcohol; with longer spines than the generality of specimens, and with the lower band near white. Karichí. By exchange with the Karichí Museum, 11th November 1879.*

*n. An adult male in alcohol. Karichí. By exchange with the Karichí Museum, 2nd May 1877.*

*o. An adolescent female in alcohol. Guna, Central India. Presented by A. Barclay, Esq., M.B., 19th September 1878. Differing somewhat from the ordinary examples of *E. pers.* by its somewhat larger ears and finer spines, and by the dark brown below the eye passing downwards and under the neck as a lower collar.*

*p. Three tubes containing spines and sections of spines of this species.*

*q to r. Three adult males in alcohol. Karichí. By exchange with the Karichí Museum, 11th December 1879.*

*s. An adult female in alcohol. Karichí Museum. By exchange, 19th August 1879.*

#### 214. *Erinaceus grayi*.

*Erinaceus collaris*, Gray, Ill. Ind. Zool. vol. i, 1830-32, pl. viii (not described); *ibid.*, List. Mamm. B. M. 1843, p. 51 (*partim*); *Hutton, Journ. As. Soc. Beng.* vol. xiv, 1845, p. 351 (first two specimens only); *Blyth, op. cit.* vol. xv, 1846, p. 170; *ibid.*, *op. cit.* vol. xvii, 1853, p. 582 (*partim*); *Wagner, Schreb. Säugeth. Suppl. Bd. xvii, 1853, 590*; *Stoliczka, Journ. As. Soc.* vol. xli, 1872, p. 225.

*Erinaceus grayi*, Bennett, Proc. Zool. Soc. 1832, p. 124; *Gray, List. Mamm. B. M. 1843, p. 51*; *Wagner, Schreb. Säugeth. Suppl. Bd. ii,*

- 1841, p. 28; *ibid.*, *op. cit.* Suppl. Bd. v, 1856, p. 590; *Fitzinger, Sitzungspte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 870 (*partim*); *Stoliczka, Journ. As. Soc. Beng.* vol. xli, 1842, p. 225; *Anderson, Journ. As. Soc. Beng.* vol. xlvii, 1878, pt. 11, p. 204, pl. iv.
- Erinaceus spatangus*, *Bennett, Proc. Zool. Soc.* 1832, p. 124, *juv.*; *Ogilby, Royle's Il. Ind. Himal. Botany*, 1839, p. 62; *Blyth, Journ. As. Soc. Beng.* vol. xv, 1846, p. 170; *Gray, Mamm. B. M.* 1843, p. 82; *Wagner, Schreb. Säugeth.* Suppl. Bd. ii, 1841, p. 27; *ibid.*, *op. cit.* Suppl. Bd. v, 1856, p. 590; *Stoliczka, Journ. As. Soc. Beng.* vol. xli, 1872, p. 225.
- Hemiechinus grayi*, *Fitzinger, Sitzungspte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 870.
- Hemiechinus collaris*, *Fitzinger, Sitzungspte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 872.
- Hemiechinus spatangus*, *Fitzinger, Sitzungspte. der K. Akad. Wien*, Bd. lvi, pt. 1, 1867, p. 873.
- Erinaceus blanfordi*, *Anderson, Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1878, p. 208, pl. v.

*Hab.* North-Western India, Western India to Sind.

214 *a to e*. Three adult females, one young female and one adolescent male in alcohol, and the skulls of *a* and *e*, the former skull figured, *Journ. As. Soc. Beng.* vol. xlvii, 1878, pl. iv. *Fathigarh*. Presented by Andrew Anderson, Esq., 11th November 1872.

*f*. The newly-born young of *b* in alcohol: eyes closed; ear of right side imperforate, that of the left side widely open, the conch being folded down on both sides. The muscular mantle covering the dorsum has a thickened margin, corresponding to the downward distribution of the spines. The spines are prolonged forwards nearly in the same line with the eye. On the middle of the forehead there is a narrow area extending a short way backwards, perfectly free of spines. A few short spines occur behind this area on the vertex, but from the nape of the neck backwards to near the posterior end of the mantle there is a continuous, rather broad, linear bare space. The spines are of two kinds, coloured and uncoloured, and the latter are the larger, and doubtless become replaced by coloured spines. The spines are placed rather widely apart, and are not very numerous, and the shortest occur along the side of the back; the largest are about  $\frac{1}{4}$  of an inch in length. The whiskers "and the hairs along the upper lips are present" and a few short scattered hairs occur on the chin, but all the other portions of the animal are perfectly nude. The snout is short and broad, and the teeth are visible. *Fathigarh*. Presented by Andrew Anderson, Esq., 11th November 1872.

*g*. Flat skin and skeleton of a young animal. North-Western Provinces. Presented by W. Rutledge, Esq., 9th June 1871.



*h.* Six tubes containing spines and sections of spines of this species. Dr. J. Anderson.

*i.* An adult male in alcohol. Agra. Major T. Cadell, V.C. Presented by the Zoological Gardens, 21st July 1877.

*j.* An adolescent male in alcohol, and its skull figured, Journ. As. Soc. Beng., vol. xlvii, 1878, pl. v. Type of *E. blanfordi*, Anderson. Rohri, Sind. By exchange with W. T. Blanford, Esq., 22nd March 1877.

*k.* An adult male in alcohol. Karáchi. By exchange with the Karáchi Museum, 29th April 1877.

*l.* A very young female in alcohol. By exchange with the Karáchi Museum, 19th November 1877.

*m.* An adult male and two adult females in alcohol. Kotri. By exchange with the Karáchi Museum, 19th August 1879.

*p to r.* One male and two adult females. By exchange with the Karáchi Museum, 12th December 1879.

*s.* An adult male in alcohol. Presented by the Zoological Gardens, 15th April 1880.

#### 215. *Erinaceus auritus*.

*Erinaceus auritus*, Pallas, Nov. Comment. Act. Petropol. vol. xiv, 1870, p. 573, pl. 21, fig. 4.

*Erinaceus albulus*, Stoliczka, Journ. As. Soc. Beng. vol. xli, 1872, pl. 2, fig. 2, p. 226; Blanford, 2nd Yarkand Mission, Mammalia, 1879, p. 14, pl. 1, fig. 2, and pl. 1a, fig. 1.

*Erinaceus macracanthus*, Blanford (partim), Eastern Persia, vol. ii, Zoology, 1876, p. 27, pl. 1, fig. 2, nec fig. 1.

*Hab.* Eastern Europe and Western Asia, as far south as Yarkand, and extending downwards to the Highlands of South-Eastern Persia.

215a. The skin and skull of an aged male. Volga, Russia. Presented by Professor Peters, Berlin, 6th September 1877.

*b.* A stuffed adolescent and its skull. Langur, near Sánju, Yarkand, 6,570 ft. Presented by the 1st Mission to Yarkand. Dr. Henderson, 1870. Type of *E. albulus*, Stoliczka.

*c to e.* The skins of two adult and one young and skulls of *c* and *d*. Yarkand. Dr. F. Stoliczka. Presented by the 2nd Mission to Yarkand, 1873-74.

*f.* The skin of an adult male. Kárgchalik, south of Yarkand. Dr. F. Stoliczka. Presented by the 2nd Mission to Yarkand, 1873-74.

*g.* The skin of an adult. Jigda, found dead on the road. Dr. F. Stoliczka. Presented by the 2nd Mission to Yarkand, 1873-74.



*h* & *i*. The skins of an adult and of another. Yangihissar. Dr. F. Stoliczka. Presented by the 2nd Mission to Yarkand, 1873-74.

*j*. A disarticulated skeleton. Yarkand, 25th May, 1874. Dr. F. Stoliczka. Presented by the 2nd Mission to Yarkand, 1873-74.

*k*. Two tubes containing spines and sections of spines of this species.

*l*. The skin and skull of an adolescent male. Karmán. South-Eastern Persia, 6,000 feet, 9th May 1872. W. T. Blanford, Esq. One of the types of *E. macracanthus*, Blanford, and figured in Eastern Persia, 1870-72, Vol. II, Zoology, pl. 1, fig. 2. Presented by the Persian Boundary Commission, 1872.

The skin of this animal is inseparable from skins of *E. albulus*, which is apparently identical with *Erinaceus auritus*. In the absence of a bare area on the forehead this hedgehog resembles *E. auritus*, while in this important structural feature it differs essentially from *E. macracanthus*. The bare area is apparently not a variable feature in a species, neither is it sexual.

The skull also closely resembles the skull of *E. auritus* and is inseparable from it.

### 216. *Erinaceus megalotis*.

(P) *Erinaceus auritus*, Pallas, Hutton, Journ. As. Soc. Beng. vol. xiv, 1845, p. 353.

*Erinaceus megalotis*, Blyth, Journ. As. Soc. Beng. vol. xiv, 1845, p. 353; Cat. Mamm. As. Soc. Beng. Mus. 1863, p. 80; Stoliczka, Journ. As. Soc. Beng., vol. xli, 1872, p. 225; Blanford, Zool. of Persia, 1876, p. 28.

*Hab.* Afghánistán.

216a. An adult, mounted; No. 234A of Blyth's Catalogue. Kandahár. Presented by Captain T. Hutton, 1845. Type of *E. megalotis*, Blyth.

*b*. The skin and skull of an adult. Purchased from a Kabul merchant, trading between Kabul and India, January 1870.

*c*. Five tubes containing spines of this species.

Ears very large and rounded; muzzle rather short and broad; feet large; inner hind toe well developed; claws large and strong. Tail short, moderately long, and nearly naked. The spines are rather long, but much shorter than in *E. macracanthus*, and they do not reach forwards to the ear, but nearly so, and they are not divided on the vertex by a bare space. The spines are covered with 28 raised ridges, rather strongly

marked by small tubercles, as in *E. macracanthus*. In the type, the spines have in some instances a narrow pale tip, somewhat as in *E. grayi*, hardly perceptible, however, in the great majority, and immediately succeeded by a broad pale-yellowish band, followed by a narrow dusky band, again succeeded by a pale band. In two specimens obtained from a native merchant trading between British territory and Kabul, and which seem to belong to this species, the spines are narrowly tipped with black, succeeded by a narrow blackish band, which is followed by a broad white band, in its turn succeeded by a narrow obscure dusky area, the base of the spine being white.

The type is in too poor a condition to gain a correct idea regarding the character of the fur, but Captain Hutton has described the face, inside of the ears, and chin, as far as the base of the ears, very pale cinereous, or nearly white; from thence all the under parts are sooty, or rusty black; head, limbs, and under parts clothed with soft hairs of a sooty black or fuliginous brown; feet darkest; tail black. In the two specimens purchased from the Kabul merchant the ears, the sides of the head from the ears to the chin, are white, while the front of the face is whitish, mixed with black hairs, giving a curious appearance, as described by Hutton; the under parts are rusty black; the limbs dark brown.

The skull of the type of *E. megalotis* was not in the collections made over by the Asiatic Society to the Government of India. The skulls, however, of the two other specimens, which may be regarded as examples of this species, present a close resemblance to the skull of *E. macracanthus*, but they are very much larger than the skulls of very old examples of that species, and the muzzle of the skull is shorter and broader, and there is relatively greater width of the post-orbital contraction. The teeth also are very much larger, but the species are undoubtedly very closely allied.

#### 217. *Erinaceus macracanthus*.

*Erinaceus macracanthus*, Blanford, *Eastern Persia*, vol. ii, *Zoology*, 1876, p. 27, pl. 1, fig. 1, *nec* fig. 2.

*Hab.* Highlands of Persia.

217a. The skin of an adult female and its skull; free ends of spines broadly tipped with black. Máhún, near Karmán, South-Eastern Persia, 6,000 feet, 3rd May 1872. W. T. Blanford, Esq. Presented by the Persian Boundary Commis-



sion, 1872. One of the *types* of *E. macracanthus*, Blanford, figured in Eastern Persia, 1870-72, Zoology, vol. ii, pl. 1, fig. 1.

*b.* The skin of an adult like the foregoing. Dizak, Balúchistán, 4,000 feet, 21st March 1872. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*c.* The skin of an adult female; spines wholly yellow, brownish washed. Karmán, 6,000 feet, South-Eastern Persia. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*d.* The skin of a large adult like the last and its skeleton. Karmán, South-East Persia, 5,000 feet. W. T. Blanford, Esq. Presented by the Persian Boundary Commission, 1872.

*e.* Three glass tubes containing the spines of this species.

#### 218. *Erinaceus jerdoni*.

*Erinaceus jerdoni*, *Anderson, Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1878, p. 209, pl. Va, figs. *e* to *h*.

*Hab.* Eastern Afghánistán (Kurram Valley), North-Western Punjab (Pind Dádun Khán, Rájampur), Sind.

218a & *b.* Two skins wholly black in bad condition. Nos. 236 A and B of Blyth's Catalogue. Pind Dádun Khán. Presented by W. Theobald, Esq., 1859.

*c.* A skull, No. 236C of Blyth's Catalogue.

*d.* An adolescent male in alcohol and its skull. Rájampur. Presented by E. Sanders, Esq., M.B., 30th April 1878.

*e.* A gravid female with four fetuses, three in one, and one in the other horn of the uterus, in alcohol, and its skull, the latter figured in the Journal Asiatic Society, Bengal, vol. xlvii, 1878, pl. Va, figs. *e* to *h*. By exchange with the Karáchi Museum, 4th June 1878.

*f.* An adolescent female in alcohol and its skull. Sind. By exchange with the Karáchi Museum, 4th June 1878.

*g.* A young male in alcohol. By exchange with the Karáchi Museum, 19th August 1879.

*h.* A young male in alcohol. By exchange with the Karáchi Museum, 12th December 1879.

*i.* An adult female in alcohol. Thull, Kurram Valley, Eastern Afghánistán. Presented by A. Barclay, Esq., M.B., 7th February 1880.

*j* to *m.* The head and feet of an adult, a fetus and the heads of two young specimens in alcohol. Thull, Kurram Valley. Presented by A. Barclay, Esq., M. B., 7th February 1880.

*n.* Six tubes containing the spines of this species.



## IV.—FAMILY CENTETIDÆ.

GENUS ERICULUS, Is. Geoff. St. Hilaire, 1839.

219. *Ericulus setosus*.Tendrac, *Buffon, Nat. Hist.* t. xii, 1764, p. 438, pl. 57.*Erinaceus setosus*, *Schreber, Säugeth.* Bd. iii, 1778, p. 583, pl. 164; *ibid.* Wagner.*Ericulus nigrescens*, *Is. Geoff. St. Hil., Mag. de Zool.* pls. 1. à 4, 1839; p. 33, pls. 3 & 4; *Mivart, Proc. Zool. Soc.* 1871, p. 73, pl. v. (*skeleton*).*Ericulus spinosus*, *Is. Geoff. St. Hil.* l. c., p. 34; *Wagner, Schreber, Säugeth. Suppl.* Bd. v, 1855, p. 584.*Hab.* Madagascar.

219a. The skeleton of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

GENUS CENTETES, Illiger, 1811.

220. *Centetes ecaudatus*.Le Tanrec, *Buffon, Nat. Hist.* t. xii, 1766, p. 438, pl. 56.*Erinaceus ecaudatus*, *Gmelin, Linn. Syst. Nat.* 13th ed. 1788, p. 117, *partim*, nec le jeune tanrec, *Buffon*, = *Hemicentetes*.*Centetes ecaudatus*, *Mivart, Proc. Zool. Soc.* 1871, p. 59.*Hab.* Madagascar.

220a. The skin of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

b. The skeleton of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

GENUS HEMICENTETES, Mivart, 1871.

221. *Hemicentetes madagascariensis*.Le jeune tanrec, *Buffon, Nat. Hist. Suppl.* t. iii, 1776, p. 214, pl. xxxvii.*Erinaceus madagascariensis*, *Shaw, Gent. Zool.* vol. 1, pl. ii, 1800, p. 548; *Mivart, Proc. Zool. Soc. Lond.* 1871, p. 58, figs. 1, 2, and 3 (*skull*).*Ericius semispinosus*, *Giebel, Zeitsch. Ges. Natur*, 1871, p. 57, pl. ii, figs. 1 to 3.*Hab.* Madagascar.

221a. The skeleton of an adult. Madagascar. By exchange with the British Museum, 6th January 1879.

## V.—FAMILY CHRYSOCHLORIDÆ.

GENUS CHRYSOCHLORIS, Cuvier, 1800.

222. *Chrysochloris rutilans*.*Chrysochloris rutilans*, *Wagner, Schreber, Säugeth. Suppl. Bd. ii, 1845*, p. 125; *ibid., l. c. Suppl. Bd. v, 1856*, p. 580.*Chrysochloris hottentotta*, *A. Smith, Zool. Journ. vol. iv, Oct. 1828* to July 1829, p. 436; *South Afr. Quart. Journ. 1833*, p. 81; *Wagner, Schreber, Säugeth. Suppl. Bd. ii, 1841*, p. 120; *ibid., l. c. Suppl. Bd. v, 1856*, p. 581.*Chrysochloris holosoricea*, *Licht. Darstellung, 1827-34*, pl. xli, fig. 2; *Wagner, Schreber, Säugeth. Suppl. Bd. ii, 1841*, p. 124; *ibid., l. c. Suppl. Bd. v, 1856*, p. 581; *Blyth, Cat. Mamm. As. Soc. Mus. 1863*, p. 87.*Hab.* South Africa.

222a &amp; b. Two stuffed specimens, Nos. 266 A and B of Blyth's Catalogue. Presented by E. L. Layard, Esq. 1859.

223. *Chrysochloris damarensis*.*Chrysochloris damarensis*, *Ogilby, Proc. Zool. Soc. Jan, 1838*, p. 5; *Ann. & Mag. Nat. Hist. Oct. 1838*, vol. ii, p. 146; *Wagner, Schreber, Säugeth. Suppl., Bd. ii, 1841*, p. 126; *ibid., l. c. Bd. v, 1856*, p. 582.*Hab.* Damarland, South Africa.

223a. A stuffed specimen, No. 267 A of Blyth's Catalogue. Presented by Major W. S. Sherwill, 1852.

## VI.—FAMILY TALPIDÆ.

GENUS RHINASTER, Wagner, 1841.

224. *Rhinaster cristatus*.*Sorex cristatus*, *Linn., Syst. Nat. 12th ed., 1766*, p. 73; *Schreber Säugeth. Bd. iii, 1778*, p. 566.*Talpa longicaudata*, *Erxleben, Syst. Reg. An. 1777*, p. 118.*Condylura cristata*, *Desm., Mamm. 1820*, p. 157; *Harlan, Fauna Amer., 1825*, p. 36.*Condylura longicaudata*, *Desm., Mamm. 1820*, p. 157; *Richardson, Fauna Br. Amer. 1829*, p. 13.*Condylura macroura*, *Harlan, Fauna Amer. 1825*, p. 39.*Condylura prasinata*, *Harris, Taylor's Phil. Mag. vol. 67, 1826*, p. 191.*Rhinaster cristatus*, *Wagner Schreber, Säugeth. Suppl. Bd. ii, 1841*, p. 117; *ibid., Suppl. Bd. v, 1856*, p. 575.*Astromydes cristatus*, *Blyth, Cat. Mamm. As. Soc. Mus. 1863*, p. 87.*Hab.* North America.

224a. A stuffed adult in bad condition, No. 264A of Blyth's Catalogue. Presented by A. D. Bartlett, Esq., 1843.

GENUS TALPA, Linn., 1766.

225. *Talpa europea*.

*Talpa europea*, Linn., *Syst. Nat.* 12th ed. 1766, p. 73; Schreber, *Säugeth.* Bd. iii, 1778, p. 558, pl. 156; Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 88.

*Hab.* Europe generally, extending to Northern Asia.

225a. A stuffed specimen; No. 268A of Blyth's Catalogue. England. Presented by A. D. Bartlett, Esq., 1843.

b & c. Two skeletons, Nos. 268 B & C of Blyth's Catalogue. One presented by Mr. W. Masters, 1844; the other no history.

d. The skin of an adult. Hunter's Bog, Arthur's Seat, Edinburgh. Presented by Dr. J. Anderson, 3rd December, 1880.

226. *Talpa micrura*.

Assam mole, McClelland, *Journ. As. Soc. Beng.* vol. vii, 1838, p. 464. *Talpa micrura*, Hodgson, *Journ. As. Soc. Beng.* vol. x, 1840, p. 910; Gray, *List Spec. Mamm. Brit. Mus.* 1843, p. 75; Blyth, *Journ. As. Soc. Beng.* vol. xix, 1850, p. 215, plate iv, fig. 2 (skull); Horsfield, *Cat. Mamm. E. Ind. Cos. Mus.* 1851, p. 129; Wagner, Schreber *Säugeth. Suppl.* Bd. v, 1856, p. 578; Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 88; A. Milne Edward's *Recherch. des Mammif.* 1868-74, p. 284.

*Talpa cryptura*, Blyth, *Journ. As. Soc. Beng.* vol. xii, 1843, p. 928.

*Hab.* Nipal, Sikkim, and Assam.

Uniformly velvety brown, with a silvery grey gloss. Snout almost nude, being sparsely clad on its sides with bristly hairs, each seated on an eminence, in the centre of a well-defined pit. A broad mesial linear tract on the upper surface of the snout, quite devoid of hairs. The extremity of the snout with a transverse furrow below the nostril, and a tumid fold of skin below the furrow. Eye very minute and covered with membrane; eyelids not defined. Claws stout on the fore feet, and moderately long. Tail about one-third of the greatest breadth of the manus, not knobbed at its end and only sparsely clad.

The skull of this species resembles the skull of the other Asiatic moles, with the exception of *T. wogura* and *T. insularis*, in having four pairs of inferior incisors, but differs from *T. leucura*, &c., in possessing four pairs of upper premolars, and in this respect it resembles *T. macrura* and *T. longirostris*.



226a. An adult male in alcohol and its skull, No. 269A of Blyth's Catalogue, p. 88. Nepal. Presented by H. B. Hodgson, Esq., C.S., 1843.

b. An adult female in alcohol, No. 269B of Blyth's Catalogue. Darjeeling, p. 88. Purchased, 1842. Type of *T. cryptura*, Blyth. Journal, Asiatic Society, Bengal, vol. xii, 1843, p. 928.

c. A skull, probably that figured in Journal, Asiatic Society, Bengal, vol. xix, 1850, Plate IV, fig. 2, and possibly the skull of the foregoing specimen.

d. An adult female in alcohol, No. 269C of Blyth's Catalogue, p. 88. Assam. Presented by Colonel Jenkins, 1854.

e. A skin in alcohol. Sadiya, Assam. Presented by Colonel Jenkins, 1854.

f to h. Three stuffed adults; Nos. 269 D, E & F of Blyth's Catalogue, p. 88. Assam. Presented by Colonel Jenkins, 1854.

i to k. Three stuffed specimens; Nos. 269 G, H and I of Blyth's Catalogue, p. 88. Darjeeling. Presented by Mrs. Oakes, 1854, and the skull of i imperfect.

l. A skeleton mounted; No. 269J of Blyth's Catalogue, p. 88, Darjeeling. Presented by W. T. Blanford, Esq., 1857. Vertebrae, c. 7; d. 13, l. 6; s. 3; p. c. 3; caudal 8.

m. A stuffed adult. Darjeeling. Presented by T. C. Jerdon, Esq., 1854.

n. A young female in alcohol. Darjeeling. Presented by W. T. Blanford, Esq., 1871.

o. Skin of an adult. Samaguting, Assam. Presented by Captain J. Butler, October 1872.

p & q. Two skins of adults. Nágá Hills, Assam. Presented by Captain J. Butler, 14th April 1875.

r. Skin of an adult. Nágá Hills, Assam. Found at an elevation of 400 feet above the sea-level. Presented by A. W. Chennell, Esq., 19th April 1875.

s. Skin of a young animal. Nágá Hills, Assam. Presented by A. W. Chennell, Esq., 1st February 1877.

t to w. Three males and one female in alcohol. Sureil, British Sikkim. Presented by George King, Esq., M.B., 4th January 1878.

x & y. Two adult males in alcohol. Sureil, British Sikkim. Presented by George King, Esq., M.B., 10th February 1879.

z & aa. An adult male and female in alcohol. Sureil, British Sikkim. Presented by J. L. Lister, Esq., 10th February 1879.

In the natural skeleton, the caudal vertebrae, 8 in number, measure 6-tenths of an inch in length.

227. *Talpa leucura*.

*Talpa leucura*, Blyth, *Journ. As. Soc. Beng.* vol xix, 1851, p. 215, pl. iv, fig. 1 (skull); Wagner, *Schreber Säugeth.* Suppl. Bd. v, 1856, p. 578; Blyth, *Cat. Mamm. As. Soc. Mus.*, 1863, p. 88.

*Hab.* Sylhet, Khási Hills, and Tenasserim.

Wholly velvety black; considerably smaller than *T. micrura* and with the snout neither so long nor narrow. The snout is clad as in *T. micrura*, but the hair crypts are not so prominent. The manus is somewhat less broad than in *T. micrura* and the nails are not so long. The tail is considerably longer than in *T. micrura*, and it is dilated into a rounded knob, sparsely covered with longish white hair; its length exceeds two-thirds of the breadth of the manus. The eye is covered by a membrane, and there are no defined eyelids.

The skull is at once distinguished from the skull of *T. micrura*, by its much smaller size, and by the presence of only three pairs of premolars in the upper jaw. The adult skull is 1".2 long, whereas that of *T. micrura* measures 1".37. This difference of size is well marked in all the bones. The caudal vertebrae are longer, but feebler, than in *T. micrura*, and their number (8) is the same in both.

227a to c. Three stuffed specimens, Nos. 270 A, B and C of Blyth's Catalogue, p. 88. Sylhet. Presented by W. Skipwith, Esq., and R. W. G. Frith, Esq., 1845-51.

d. An adult female in alcohol, No. 270D of Blyth's Catalogue, p. 88. Chárápunjí. Presented by R. W. G. Frith, Esq. *Types* of *T. leucura*, Blyth.

e. An adult female in alcohol, No. 270E of Blyth's Catalogue, p. 88. Hilly region bordering on the Sittang River, Tenasserim. Presented by Major Berdmore, 1848.

f. A young female in alcohol. Khási Hills. Presented by W. S. Atkinson, Esq., 23rd December 1867.

g. A natural skeleton, No. 270F of Blyth's Catalogue, p. 88. Hilly region bordering on the Sittang River, Tenasserim. Presented by Major Berdmore, 1848.

h. A natural skeleton. Prepared from a specimen presented by Arthur Grote, Esq., 4th July 1868.

i. A skull: no history, apparently the skull figured by Blyth in the Journal, Asiatic Society, Bengal, vol. xix, 1851, pl. iv fig. 1.

j. Skin of an adult. Nágá Hills, Assam, found at an elevation of nearly 10,000 feet above the sea-level. Presented by A. W. Chennell, Esq., 14th April 1875.



## VII.—FAMILY SORICIDÆ.

## I.—SUB-FAMILY ANUROSORICINÆ.

GENUS ANUROSOREX, A. M. Edwards, 1870.

228. *Anurosorex assamensis*.

*Anurosorex assamensis*, *Anderson, Ann. & Mag. Nat. Hist.* vol. xvi, 1875, p. 252; *Anat. & Zool. Resch. Yunnan Exped.* 1878, p. 150, pl. v figs. 1-16.

*Hab.* Assam.

Head large; eye excessively small; ear hidden under the fur, and valvular. Feet devoid of hairs, scaly and of nearly equal breadth, but the fore-feet the shorter. Tail rudimentary, almost completely hidden by the fur. Fur nearly erect, fine, dense and silky, longest on the rump: numerous long hairs project beyond the general mass of the fur, and are brown, with obscure pale tips: general colour of the fur dark slaty, faintly marked with brownish rusty on the long hairs on the rump. Whiskers well developed: shorter hair above and between the eyes: semi-nude parts of the snout, the scaly limbs, and tail are flesh coloured, and the claws are yellow. Snout to vent 2".92: fore-foot 0".50: hind foot 0".75: tail 0".50.

278a to e. A stuffed adult female and her skeleton, and three of her young ones in alcohol. Obtained between Sibságar and Jaipur, Assam. Presented by S. E. Peal, Esq., September 1871. *Type*. Described and figured *Anat. & Zool. Resch.*

## II.—SUB-FAMILY CROCIDURINÆ.

GENUS CROCIDURA, Wagler, 1832.

SUB-GENUS PACHYURA, Selys-Longchamps, 1839.

(*Lateral gland.*)

229. *Crocidura cærulescens*.

La musaraigne musquée de l'Inde, *Buffon, Nat. Hist.* Suppl. t. vii, 1789, p. 281, pl. lxxi.

Perfuming Shrew, *Pennant, Quadr.* vol. ii, 1781, p. 477.

<sup>1</sup> *Pygmyra*, *Anderson, Proc. Zool. Soc. Lond.*, 1873, p. 229.



- Sorex caeruleus*, Shaw, *Genl. Zool.* vol. i, pt. 2 (1800), p. 533, *partim*. Blyth, *Cat. Mamm. As. Soc. Mus.* 1863, p. 82, sed nec *S. crassicaudatus*, Licht.; Jerdon, *Mamm. of Ind.* 1867, p. 53.
- Sorex indicus et murinus*, Geoff. *St. Hil. Ann. du Mus.*; t. xvii, 1811, p. 183; et p. 186: *Mém. du Mus. d'Hist. Nat.* t. i, 1815, p. 303, pl. xv, figs. 1 & 2.
- Sorex indicus*, F. Cuv., *Hist. Nat. des Mammif.*, livr<sup>e</sup>. XL, Avril 1823, pl. 28: Sykes, *Proc. Zool. Soc. Lond.* 1830, p. 99.
- Sorex sonneratii*, Is. Geoff. *St. Hil., Ann. du Mus.* t. xv, 1827, p. 132.
- Mus giganteus*, Is. Geoff. *St. Hil., Mém. du Mus.* 1827, p. 137 (*partim*).
- Sorex myosurus*, Grey & Shaw, *Ill. Ind. Zool.* vol. i, 1832, *Mamm.* pl. ix, nec *C. myosurus*, Pallas.
- Sorex murinus*, Gray, *List of Mamm.* B. M. 1843, p. 78 (*partim*); Kelaart, *Prod. Fauna Zeylanica* 1852, p. 30.
- Sorex tytleri*, Blyth, *Journ. As. Soc. Beng.*, vol. xxviii, 1859, p. 285.
- Crocidura* (P.) *waldemarii*, Peters, *Monatsb. K. P. Acad.*, 1870, p. 590.
- Pachyura indica*, Anderson, *Proc. Zool. Soc.* 1873, p. 231.
- Crocidura* (P.) *fulvocinerea*, et *sindensis*, Anderson, *Journ. As. Soc. Beng.* vol. xlv, pt. 11, 1877, pp. 263 et 266.

*Hab.* India generally; Ceylon; Arakan and Burma.

The form is rather heavy in the fully adult, but in the adolescent it is less so: the limbs are short and stout. The head slopes gradually downwards and forwards from the vertex, and the snout, which varies in length, is long, but slightly depressed from beyond the moustachial swelling, which appears to gain in breadth as the animal advances in age, the head generally becoming much heavier than it is in the adolescent. The snout terminates in two somewhat tubular nostrils, which are divided from each other by a sharp incision; their orifices look outwards and forwards. There is a slight contraction before the eyes, followed by the considerable moustachial swelling. The eyes are small. The ears are moderately large and rounded, but of varying dimensions. The hind feet and toes are rather short, but of variable size, and the claws are moderately developed. The snout and the chin are seminude, sparsely clad with short pale hairs, but the moustachial hairs are numerous and long. The ears also are only very sparsely clad along their margins, and over their external aspect, with short delicate hairs. The fore-limb is densely clad, almost to the wrist, but immediately above the joint the hairs are short and sparse, and this character is preserved by the pelage on the backs of the fore-feet, while on the toes the hairs are fewer, and occur only between the rings that mark their upper surface. The backs of the fore-feet are also scaly. The lower half of the tibial portion of the hind limb is almost nude, the hairs being few and short, and this character occurs also on the upper surface of the *pes*. The feet have thus the appear-

ance of being nearly nude. There is a seminude area around the urino-genital orifice continuous with the seminude skin of the under surface of the tail. The tail is very thick at the base in the males, and has the appearance of being round, while in reality it is broader than it is deep from above downwards; like the hinder feet it is somewhat variable in length. It is marked by fine, much interrupted concentric rings, 25 to 30 to half an inch, and between these short white hairs occur, but so sparsely as in no way to obscure the skin, and at intervals of about quarter of an inch, long, isolated, white hairs occur to within half an inch of the tip of the tail. The fur varies in length, probably according to climate and seasonal changes. It is generally pure grey, but the tips of the hairs in adults are generally yellowish grey, so that animals have not unfrequently a pale fawn tint mixed with greyish, and in Assam specimens the fur is marked with reddish brown. All the seminude parts are pinkish flesh-coloured. The colour, however, is darkest in youth, when it is dark slate-grey, and palest in adult life, when it appears to become more rufous. The female (5), killed along with the male (4), has a decided rufous tint all over the upper parts; so much so that the colour may be described as rufous fawn, with a slight greyish tint on the side, the under surface also being grey with a rufous tint. In this gravid female the fur is extremely short, while in the male it is much longer.

The following measurements may be given of both sexes:—

	1	2	3	4	5	6	7
						Assam var. <i>fulvo-</i> <i>cinerea.</i>	
	♂	♀	♂	♂	♀	♂	♀
	in.	in.	in.	in.	in.	in.	in.
Tip of snout to vent . . .	6.35	5.15	5.90	7.00	6.30	6.07	4.35
Vent to tip of tail . . .	3.65	3.05	3.50	4.00	3.50	3.90	2.83
Length of hind feet . . .	1.03	0.90	1.03	1.03	1.00	1.00	0.82
Tip of snout to eye . . .	0.88	0.70	0.87	0.98	0.89	0.07	0.70
Eye to ear . . .	0.51	0.41	0.51	0.65	0.54	0.57	0.35
Height of ear <sup>1</sup> . . .	0.60	0.50	0.58	0.56	0.49	0.50	0.35
Breadth of ear . . .	0.55	0.47	0.52	0.45	0.46	0.41	0.40

<sup>1</sup> The height of the ear is taken in a straight line from below the orifice, and the breadth is measured from the centre of a straight line between the upper and lower ends of the conch, backwards to its free margin.



The following are the skull measurements:—

	♂	♀
	No. 5.	No. 4.
Inferior margin of foramen magnum to tip of premaxillaries between first incisors . . . . .	1.40	1.26
Greatest breadth across molars . . . . .	0.51	0.47
Breadth behind infraorbital foramen . . . . .	0.28	0.28
„ anterior to expansion of brain case . . . . .	0.35	0.35
„ external to glenoid articulation . . . . .	0.51	0.55
„ „ to tympanic . . . . .	0.67	0.62
Condyle of lower jaw to commencement of alveolar line . . . . .	0.77	0.77

The skulls are from two specimens from Calcutta, the measurements of which are already given. The female skull is that of an old animal, as the teeth are considerably worn and the basi-occipital suture has wholly disappeared, while in the male skull there is still a trace of it, but in the male skull the teeth are also worn. The male is the larger, with much more posterior breadth and much more powerful first incisors than the female skull. Although sexual, the differences in dentition show themselves in the upper first incisors, and not in the canines, as in other mammals.

There are 14 dorsal, and 19 caudal vertebræ.

At first I was disposed to recognise two large shrews as existing in Calcutta, one with larger feet than the other, but on a more extended enquiry I had to abandon any such opinion because of the constant recurrence of intermediate individuals, leading from one extreme into the other. The variability of the tail in this, as in other shrews, was *à priori* to be looked for owing to the circumstance that the tails of the newly born of the same litter vary considerably, and are always very short. In two females of the same brood the tail in one measured 3.05, and in the other 3.44. In the same individuals the hind foot is also seen to be the subject of considerable variation.

There can be no doubt but that this species, as well as other species of shrews, breed before they are adult, long before the basi-occipital suture of the skull shows any sign of tending to become obliterated, and long before the cranial muscular



ridges become defined. This being the case, it will probably be found that the young of these adolescent mothers are smaller than those produced by the larger fully mature females.

The young of this large shrew are born with none of their teeth through the gums, but at the same time the teeth are well developed, the gum forming a sharp ridge over the incisors and intermediate teeth to the second premolar, the incisors rapidly piercing the gum, their tips showing before the eyes have opened, and the large cusp of the second premolar rapidly following them.

Even before the eyes are opened, the young shrew is most active in its movements, rushing about in a wild way and snapping at everything that may touch it, its mobile snout being in constant motion. The head in the young state bears a very large proportion to the size of the trunk.

The gland on the side is situated nearly half-way between the fore and hind limbs, in a line with the head of the humerus, or nearly so. Around the gland, the fur is rather sparse, but its position is indicated by the existence of narrow short hairs arranged in two lateral bands which arch inwards and meet over the middle of the gland, the two bands being continuous behind the gland, and their hairs at that point arching forwards. These glands are equally developed in the male and female. In the very young shrew the musky odour emitted by this gland is hardly perceptible, but it is overpowering in the adult. It is, therefore, probably a means of bringing the sexes of this nocturnal animal together, as their sight cannot be very keen, whereas it is evident that their sense of smell is acute, or it may protect them against their enemies.

There is a distinct sac beyond the true termination of the rectum, opening by a puckered orifice nearly  $\frac{1}{4}$  of an inch within the sac: on either side of the rectal orifice, but below it, there is a deep pit, doubtless the orifice of a compound anal gland.

The *Sorex caeruleus*, Shaw (General Zoology, vol. 1, part. 2, 1800, p. 533), is founded on Pennant's shrew, or shrews from Java and the East India Islands, and on the *Musaraigne Musquée de l'Inde* of Buffon, which Shaw states was brought from Bengal by Sonnerat, whereas M. Geoffroy St. Hilaire, who also apparently described this species as *S. indicus*, informs us (Ann. du Mus. d'Hist. Nat., t. 17, 1811, p. 183) that his type had been originally described by Buffon as the *Musaraigne de l'Inde* (Hist. Nat. Suppl., t. vii,

p. 281, pl. 71), and that it was founded on an individual brought from Pondicherry by Sonnerat. He also seemed disposed to regard *S. murinus*, Linn. as also identical with it.

In the same volume of the *Annales du Muséum* in which Geoff. St. Hilaire described *S. indicus*, he also described *S. capensis*, said to have been obtained at the Cape of Good Hope; and in the 1st volume of the *Mémoires du Muséum*, 1815, plate xv, fig. 1, he gave a good representation of the former from a specimen obtained at Tranquebar. In 1827, in the *Mém. du Mus. d' Hist. Nat.*, vol. xv, ls. Geoff. St. Hilaire disputed the correctness of his father's views regarding the specific distinctness of *S. indicus* and *S. capensis*, and held them to be one and the same species, and he renamed it *S. sonneratii*. He doubted that the type of *S. capensis* had come from the Cape of Good Hope, as he considered it unlikely that such a mammal would have been overlooked by Kolbe, Sparrman, Levaillant and Daniel, and that the expedition under Baudin, Quoy and Gaimard, Lesson and Garnot and Delalande, could have failed to discover it, if it existed.

Duvernoy regarded *S. capensis* as the same as *S. serpentarius*, Is. Geoff., and he pointed out that the type of *S. capensis* was an individual from the Isle of France, where it had been obtained in 1804 by Peron and Lesueur.

Desmarest followed Geoff. St. Hilaire in separating *S. indicus* from *S. capensis*.

In 1827 Is. Geoff. St. Hilaire described a shrew which he said was found on the Continent of India, and probably also on the islands of the Archipelago, and which he identified with Mummy shrews from the Catacombs of Thebes and Memphis. Of this shrew he says two good figures had been published, being one by his father (*Mém. du Mus.*, vol. i, plate xv, fig. 1) under the name of Musaraigne, *S. indicus*, and the other by F. Cuvier in the *Histoire Nat. des Mammif.*, under the name of Monjourou, *S. indicus*. Geoff. St. Hilaire, however, states that this figure of *S. indicus* was, as I have already stated, taken from a Tranquebar individual. F. Cuvier's figure is apparently from a Pondichery animal obtained by Leschenault and is an example of the dark variety. This shrew Is. Geoff. named *Sorex giganteus*. Writing again, 1834 (*Zool. Voy. de Belanger*, p. 117), he gave a good description of the species founded on an individual from Bengal.

As there is no example of the large shrew of Egypt in this museum, I cannot say anything regarding its specific identity or distinctness from the giant shrew of India.



With regard to the food of this animal and of its allies generally, it is noteworthy that Is. Geoff. St. Hilaire states on the authority of Bélanger, that the large shrew at Pondichery "ferait de grands dégâts dans les magasins de riz." Being aware that the natives of Bengal generally assert that the musk shrew is a great eater of rice and of pulse, I procured a few alive to watch their habits. I found them, as was to be expected, thoroughly nocturnal, spending the day in sound slumbers when undisturbed, but waking up at nightfall, when they became very restless. I placed rice beside them, but it was always left untouched, whereas cockroaches were eaten with avidity. I have examined the contents of the stomachs of a large number of specimens, and have found traces of hair, ants, larvæ of flies, and flies themselves and bits of flesh, and a tapeworm. I am therefore disposed to believe that Bélanger was entirely wrong in ascribing to these animals depredations wholly attributable to rodents.

229a & b. Two stuffed adults, Nos. 244A & B of Blyth's Catalogue. Calcutta.

c. The skeleton of an adult female, No. 244C of Blyth's Catalogue. Calcutta.

d. The skull of a male, No. 244D of Blyth's Catalogue. Calcutta.

e & f. Two adult males in alcohol and the skull of e. Royal Botanical Gardens, Howrah. Presented by Dr. J. Anderson, 1867.

g. An adolescent male in alcohol and its skull. Ceylon. Presented by H. Nevill, Esq., 26th February 1871.

h to j. Three newly born females in alcohol. Calcutta. Purchased, 14th August 1871.

k & l. Two adult males in alcohol. Purneah. Museum Collector, March 1872.

m to p. An adult male and female, and one adolescent female, and another gravid, in alcohol, and the skulls of n & p. Fathigurh. Presented by Andrew Anderson, Esq., 22nd April 1872.

q & r. An adult male and an adult female in alcohol and the skull of q. Calcutta. Presented by Dr. J. Anderson, 22nd July 1872.

s. An adult male in alcohol and its skull imperfect. Purneah. Presented by G. W. Shillingford, Esq., 23rd August 1872.

t. An adult male in alcohol and its skull. Colombo, Ceylon. Presented by Dr. J. Anderson, October 1872. The



skull of this specimen has only 28 teeth, the small intermediate tooth having disappeared.

*u.* An adult female in alcohol and its skull. Calcutta. Presented by Dr. J. Anderson, 1872.

*v & w.* Two adult males in alcohol and the skull of *w.* Calcutta. Presented by Mr. R. DeCruz, 6th February 1875.

*x & y.* An adolescent and a young male in alcohol, and the skull of *x.* Museum Offices, Kyd Street, Calcutta, 19th April 1873.

*z.* The skin of an adult female, and its skull and bones of the trunk. Circular Road, Calcutta. Purchased, 8th May 1876.

*aa.* An adult male in alcohol and its skull. Madras. By exchange with the Central Museum, Madras, 13th December 1876.

*bb.* The skeleton of an adult male. Calcutta. Purchased, 3rd May 1877.

*cc.* The skeleton of an adult male. Calcutta. Purchased, 5th May 1877.

*dd.* The skeleton of an adult male. Calcutta. Purchased, 6th May 1877.

*ee & ff.* An adult and gravid female and an adult female in alcohol. Calcutta. Purchased, 10th May 1877.

*gg & hh.* Two skins of adult males, their skulls and bones of the trunks. Calcutta. Purchased, 16th May 1877.

*ii.* The skin, skull, and bones of the trunk of an adult male. Calcutta. Purchased, 22nd May 1877.

*jj.* The skin, skull, and bones of the trunk of an adult female. Calcutta. Purchased, 25th May 1877.

*kk.* The skin, skull, and bones of the trunk of an adult female. Calcutta. Purchased, 30th May 1877.

*ll.* The skin, skull, and bones of the trunk of an adult female. Calcutta. Purchased, 31st May 1877.

*mm.* The skin and skeleton of an adult male. Calcutta. 5th June 1877.

*nn & oo.* An adult and adolescent male in alcohol. Calcutta. Purchased, 19th February 1877.

*pp.* The skeleton of an adult male. Calcutta. 7th May 1877.

*qq & rr.* Two young animals in alcohol, eyes still closed. Museum Offices, Kyd Street, Calcutta. 17th July 1877.

VAR. *fulvocinerea.*

*ss.* An adult male and female in alcohol and their skulls. Gauhati, Assam. Museum Collector, October 1872.

The skin of an adult and its skull. Gauhati. Museum Collector, October 1872.

*uu.* An adult female in alcohol, No. 247C of Blyth's Catalogue. Arakan. Presented by Sir Arthur P. Phayre, 1845.

VAR. *sindensis*.

*vv.* An adult female in alcohol and its skull. Karachi. By exchange with the Karachi Museum, 2nd April 1877. Type of *C. sindensis*.

*ww & xx.* Two females in alcohol. Karachi. By exchange with the Karachi Museum, 19th March 1877.

*yy to bbb.* An adolescent and a young male and two females in alcohol. Karachi. By exchange with the Karachi Museum, 29th April 1879.

*ccc & ddd.* An adult male and another in alcohol. Karachi. By exchange with the Karachi Museum, 4th June 1878.

*eee & ggg.* Three specimens in alcohol. Karachi. By exchange with the Karachi Museum, 12th December 1879.

230. *Crocidura beddomii*, n. sp.

*Hab.* Southern India (Kollegál, Coimbatore).

Snout moderately long, rather abruptly and sharply pointed. The snout, feet and tail very pale flesh-coloured. General colour of fur dark grey, rather richly marked with rufous in some. The tail is about half the length of the body, and the hind feet are small. The tail is nearly nude and sparsely covered with short white hairs, with a few long white hairs intermixed.

The adult male and female have the following measurements:—

	♂	♀
Snout to vent . . . . .	4.30	4.10
Tail, vent to tip . . . . .	2.30	2.50
Hind foot . . . . .	0.72	0.68

This species is closely allied to *C. carulescens*, but it is very much smaller with a proportionally less elongated snout. It is separated from *C. murina* also by its shorter snout, the colour of its nude parts, its sparsely clad tail and by the colour of its fur.

*a to d.* An adult and two adolescent males and one adult female in alcohol, and the skull of *a*. Kollegál hills, Coimbatore District. Presented by Colonel Beddome, 25th November 1878.

*e.* An adult female in alcohol. Russellkonda. Ganjam District. Presented by Colonel Beddome, 25th March 1879.



231. *Crocidura murina*.

- Sorex murinus*, Linn., *Syst. Nat.*, 12th ed., 1766, p. 74; *Blyth, Cat. Mamm. As. Soc. Mus.*, p. 83.  
*Sorex myosurus*, Pallas, *Act. Acad. Petrop.* vol. x, 1785, p. 327, pl. iv; *Wagner, Schreber Säugeth. Suppl. Bd. v*, 1856, p. 552, *partim*.  
*Sorex caerulescens* var. *Raffles*, Linn. *Trans.* vol. xiii, 1822, p. 225.  
*Sorex serpentarius*, Is. Geoff. *St. Hil., Voyage de Bélanger*, 1834, p. 119; *Blyth, Cat. Mamm. As. Soc. Mus.*, 1860, p. 83.  
*Sorex soccatus*, Hodgson, *Ann. & Mag. Nat. Hist.* vol. xv, 1845, p. 135; *Blyth, op. cit.*, p. 84.  
*Sorex niger*, Elliot, Horsfield, *Cat. Mamm. E. Ind. Co's. Mus.* 1851, p. 135; *Blyth, op. cit.*, p. 84.  
*Sorex kandianus*, et ferrugineus, Kelaart, *Prod. Faunæ Zeylanicæ*, 1852, pp. 30, 31.  
*Sorex heterodon*, *Blyth, Journ. As. Soc. Beng.* vol. xxiv, 1855, p. 30; *viridescens*.  
*Sorex viridescens*, *Blyth, Journ. As. Soc., Beng.*, vol. xxviii, 1859, p. 285.  
*Sorex albinus*, *Blyth, Journ. As. Soc. Beng.* vol. xxix, 1860, p. 90.  
*Sorex griffithii*, *Blyth, Cat. Mamm. As. Soc. Mus.*, 1863, p. 83.  
*Crocidura* (P.) *ceylanica*, Peters, *M. B. Akad. Berl.*, 29th July, 1870, p. 591.  
*Crocidura* (P.) *blanfordi*, Anderson, *Journ. As. Soc. Beng.*, vol. xlv, pt. ii, 1877, p. 269.  
*Crocidura* (P.) *blythii* et *pealana* Anderson, *Journ. As. Soc. Beng.*, vol. xlv, pt. ii, 1877, pp. 264, 267 et 276.

*Hab.* Eastern and Southern India; Himalayas (Nepal, Sikkim); Assam, Khâsi Hills; Arakan, Burma; Tenasserim, Malayan Peninsula, Sumatra, Java, China (Amoy).

Snout moderately long and pointed, not much swollen across the incisors. Lower lip sharp and pointed. Feet well developed, the hind feet being rather large. Fore-limb clothed to the wrist; tibial portion of hind limb in its lower half moderately clad with short brown hairs. Snout, ears, feet, and tail brown; claws moderate and yellow; tail somewhat swollen at the base, round, rather thickly clad with short dark brown hairs, and with long white and brownish hairs interspersed. Tail about the length of the trunk without the head, but varying much in its dimensions. General colour above brown, generally more or less washed with rusty or reddish, and sometimes with a faintly grizzled sheen in certain lights. Under surface dark mousey brown. Fur soft and silky, generally rather short, but longer in individuals from high localities.

♂	Tip of snout to vent	4.70	hind foot without claws	0.95	tail	3.00
♀	" " "	4.15	" " "	0.80	"	2.70

In this as in the former species and those which follow, the



male is considerably larger than the female, and, moreover, the individual differences in size in the sexes are considerable.

The first incisors above are rather long and the curve outwards from the base anteriorly is not so abrupt as in the previous species, but it is not a character calling for special remark, as the degree to which it occurs is variable.

The antero-posterior breadth of the posterior portion of the first incisor equals the same breadth across the base of the anterior portion of the tooth where it joins its posterior portion. The cusp of the posterior portion is not prominent, and there is only a very obscure process of the cingulum at its inner side. The second incisor is large and its breadth above equals the united breadth of the 3 incisors and eye tooth, and its point is above the level of the middle cusp of the false molar. The second premolar is smaller than the canine and lying immediately behind it, and in contact with it is the first premolar which is wholly visible from the outside of the jaw or nearly so. The cusp on the anterior border of the 1st premolar is well developed and in nearly the same line as the points of the 3 incisors, and above the point of the canines, which is at a lower level.

*Skull measurements. Male fully adult, and female nearly so.*

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
♂ Length of skull	1.30	0.49	0.31	0.32	0.51	0.59	0.74
♀ " "	1.05	0.43	0.25	0.30	0.48	0.56	0.63

Tomes describes the type of *S. griffithii* as characterised by the large size of its teeth, which exceeded, he states, those of any example of *S. cærulescens* he had ever seen. Such a description, however, is in no way applicable to the types of *S. griffithii* as understood by Blyth, and it is therefore perfectly evident, apart from external characters, that they are not the *S. griffithii* of Horsfield. Tomes, however, did not concur with Horsfield in considering the fur as either short, close, or soft, but describes it as of medium length, deep blackish grey, glossy and rather coarse. The specimens from Arakan described by Blyth as *S. murinus* (Ann. and Mag. Nat. Hist., Vol. XVII, 1851, p. 15) were afterwards the types of Blyth's *S. griffithii*, but these specimens were regarded by Tomes as *S. cærulescens*, and one of them appears to be that species.

Blyth was under the impression that the type of *S. griffithii* was from the Khási Hills, although described from Afghánistán, because he saw a fine skin of a shrew be

believed to be *S. griffithii* from Chárápúnjí in the possession of Griffith. This specimen had been forwarded to the India House by Dr. M'Clelland, and Blyth seems to have concluded that it was the type of *S. griffithii*, Horsfield; but the evidence is unsatisfactory, and, moreover, Blyth's specimens, as already observed, do not agree with the description of *S. griffithii*.

In the type of *C. heterodon*, beyond the inward folding of the hair on the sides of the heel, as occurs in shrews generally, I cannot detect the hairy patch mentioned by Blyth. The feet have had the tarsal bones removed, and the heel thus appears to begin at a bared portion of the leg, and in this way I think Blyth had been misled.

The type of *S. viridescens*, Blyth, was "a flat skin, tailless, and with only one hind foot attached."

231a. A stuffed adult male and its skull, No. 247A of Blyth's Catalogue. Chárápúnjí. Presented by F. Skipwith, Esq., 1846.

b. An adult female in alcohol and its skull, No. 247B of Blyth's Catalogue. Chárápúnjí. Presented by F. Skipwith, Esq., 1846.

c to f. An adolescent male and three adult females in alcohol, and the skull of d. Sibságar, Nágá Hills, Assam. Presented by S. E. Peal, Esq., February 1871.

g. The skin and skull of an adult female. Sibságar, Assam. Presented by S. E. Peal, Esq., February 1871.

h. Stuffed specimen, No. 248C of Blyth's Catalogue. Mergui. Presented by Major Berdmore, 1853.

i. A stuffed specimen, No. 250A of Blyth's Catalogue. Chárápúnjí. Presented by R. W. G. Frith, Esq., 1855. Type of *S. heterodon*, Blyth.

j. A young female in alcohol and its skull; and No. 248E of Blyth's Catalogue; its skull much blackened. Mergui. Presented by Major Berdmore, 1853.

k. An adolescent female in alcohol and its skull. Chárápúnjí. Presented by Lieutenant J. H. Bourne, 12th July 1871.

l. The skin of an adult male and its skull. Samaguting, Assam. Presented by Captain J. Butler, 1873.

m to o. One adult male, and one adult and one adolescent female in alcohol, and the skulls of m and o. Samaguting, Assam. Presented by Captain J. Butler, 1873.

p. A young male shrew in alcohol, and its skull, apparently this species. Sibságar, Assam. Presented by S. E. Peal, Esq., July 1871.



q. A stuffed adolescent, No. 244E of Blyth's Catalogue. Tenasserim. Presented by W. Theobald, Esq., 1855.

r. A stuffed adult and portion of its skull, No. 246A of Blyth's Catalogue. Calcutta, 1859.

s. The skin of a female. Head of Barak river, Nágá Hills, Assam. Presented by Lt.-Colonel H. H. Godwin-Austen, 26th August 1873.

t. A stuffed adult male and its skull, No. 246D of Blyth's Catalogue. Amoy. Presented by R. Swinhoe, Esq., 1854.

u. The skin in alcohol and its skull, No. 246E of Blyth's Catalogue. Amoy. Presented by R. Swinhoe, Esq., 1859.

v. A stuffed specimen and portion of its skull, No. 245A of Blyth's Catalogue; in bad condition. Amoy. Presented by R. Swinhoe, Esq., 1859. The *type* of *Sorex albinus*, Blyth.

w & x. Two adult females in alcohol and their skulls. Sibsaigar, Assam. Presented by S. E. Peal, Esq., 20th December 1875. *Types* of *C. pealana*.

y. A stuffed specimen. Tinnevely. Presented by the Rev. H. Baker, 1859. This is the pale specimen mentioned by Blyth.<sup>1</sup>

z. & aa. An adult male and female in alcohol and their skulls. Travancore. Presented by the Rev. Mr. Baker, 1870.

bb. Skin from Madras. Presented to the Museum of the East India Company by Colonel Sykes, and presented to the Indian Museum by the India Museum, London, through the Trustees of the British Museum, 13th April 1880. This is one of the types, if not the *type*, of *S. niger*, Sykes, and is probably the specimen mentioned in the Catalogue of the East India Company's Museum (Horsfield), p. 135, No. 147.

cc & dd. Two stuffed adult males (?) and their skulls, Nos. 246 G and H of Blyth's Catalogue. Malabar. Presented by the Rev. H. Baker, June 1859. *Type* of *S. viridescens*, Blyth.

ee. A stuffed adolescent specimen, in very bad condition; No. 251A of Blyth's Catalogue. Presented by the Rev. H. Baker, 1858.

ff. A stuffed male and its skull; No. 248A of Blyth's Catalogue. Kandy, Ceylon. Presented by Dr. Kelaart, 1852. *Type* of *Sorex kandianus*, Kelaart.

gg. A stuffed female and its skull. Khandála, 2,000 feet. Western Ghat. Presented by W. T. Blanford, Esq., 1871. *Type* C. (P.) *blanfordi*, Anderson.

<sup>1</sup> Journ. As. Soc. Beng. Vol. XXVIII, p. 284.



*hh.* A stuffed specimen and its skull, No. 249A of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill, 1854.

*ii.* A nearly adult female in alcohol and its skull. Darjeeling. Presented by W. S. Atkinson, Esq., May 1871.

*jj to mm.* Two adolescent females. Sureil, British Sikkim. Presented by George King, Esq., M.B., 10th February 1879.

*nn to pp.* Three adult males: no history; probably from British Sikkim.

*qq to vv.* Two adolescent, and three adult males, and one adult female in alcohol. Sureil, British Sikkim. Presented by J. L. Lister, Esq., 10th February 1879.

*ww to yy.* An adolescent, a young and younger female in alcohol. Darjeeling. By exchange with W. T. Blandford, Esq., 27th November 1877.

#### 232. *Crocidura swinhoi*.

*Sorex swinhoi*, Blyth, *Journ. As. Soc. Beng.*, vol. xxviii, 1859, p. 285.

*Sorex murinus*, Blyth, *Journ. As. Soc. Beng.*, vol. xxix, 1860, p. 89, *partim*; *ibid.*, *Cat. Mamm. As. Soc. Mus.*, 1863, p. 83, *partim*.

*Hab.* China (Amoy).

Snout long and pointed. Ears rather large. Feet proportioned to body; claws rather strong and blunt. Lower half of limbs with short hair; upper surface of feet not seminude, but clad with short brownish-yellow hairs. Tail about the length of the trunk; long, and ringed, covered with short yellowish-brown hair, with long white and brownish hairs intermixed. Fur short, silky dark brown, with a glossy lustre; the under surface mousey brown.

Length of stuffed specimen 3".60; fore-foot 0".43; hind foot 0".72; tail 2".40.

Unfortunately the dental portion and the lower jaw are the only parts of the skull that have been preserved. The upper front incisors are short, convergent to their tips, but widely apart throughout. There is a well-developed tubercle on the inside of the basal eminence. The small *front premolar* is placed *entirely within the line* of the other teeth on the palatal surface. The tooth on either side occupies exactly the same position as its fellow, and this circumstance leads me to regard the arrangement as normal. Even supposing it were not, the general characters of the Shrew themselves separate it from *C. murina*, with which Blyth regarded it as identical. The second incisor is large and more

than exceeds the size of the united third incisor and canine. These two last mentioned teeth are rather small, and the canine slightly exceeds the size of the incisor. The tip of the chief cusp of the false molar is below the level of the point of the second incisor.

232a. A stuffed adult, No. 246C of Blyth's Catalogue and its skull. Amoy. Presented by R. Swinhoe, Esq., 1854. Type of *S. swinhoei*, Blyth.

### 233. *Crocidura bidiana*.

*Crocidura* (P.) *stoliczkana* et *bidiana*, *Anderson, Journ. As. Soc. Beng.* vol. xlvii, pt. ii, 1877, pp. 270, 276.

*Hab.* Southern and Western India (Madras and Bombay).

Snout long and pointed. Ears moderately large and round, and rather well haired. Feet large and seminude; the lower halves of the radial and tibial portions are also seminude; claws with rather long sharp curved points. Tail not much swollen at the base, equalling the length of the trunk and one-half of the head, well covered with short brown hairs, with long whitish hairs intermixed, their bases being dark brown. Snout, ears, and feet pale reddish brown, tail darker. Fur long, fine, and dense, 0.35 in length, reddish brown above and below, the basal portion of the fur, as usual, being dark slaty. The under surface has also a greyish gloss.

Length, tip of snout to vent	. . . . .	in. 3.20
" of tail	. . . . .	" 2.60
" of hind foot	. . . . .	" 0.80
" tip of snout to eye	. . . . .	" 0.70
" eye to ear	. . . . .	" 0.27
Height of ear	. . . . .	" 0.27
Breadth of ear	. . . . .	" 0.30

The foregoing specimen is a male with nearly all the sutures of the skull obliterated. The upper incisors are not very prominent and but little curved, and there is a small but well-defined tubercle on the inner side of the posterior portion of these teeth forming a sharp conical cusp. The second incisor is large and nearly equals the length of the chief cusp of the first molar. The third incisor and canine are almost of equal size, but the latter, as is generally the case, is slightly larger than the former. The premolar is small and wedged in between the canine and the first molar, is sharply conical, and nearly wholly visible externally. The anterior cusp on the first molar is small and rather blunt, and



considerably above the level of the point of the canine. There is a minute eminence on the outside of the lower incisor near its tip. The total length of the upper line of teeth is 0<sup>6</sup>.45.

The skull unfortunately met with an accident before it was measured. The smaller and more rounded ears, its larger size, and the presence of a lateral gland separate it from *C. rubicunda*.

233a. An adult male in alcohol, and its skull, imperfect. Madras. By exchange with the Central Museum, 13th December 1876. Type of *C. bidiana*.

b. An adolescent male in alcohol and its skull. Bombay. Presented by Dr. F. Stoliczka, 12th April 1872. Type of *C. stoliczka*.

#### 234. *Crocidura macrotis*.

*Sorex peyrottetii*, Blyth, (partim) *Journ. As. Soc.*, vol. xvi (1847), p. 1275.

*Sorex melanodon*,<sup>1</sup> Blyth *Journ. As. Soc. Beng.* vol. xxiv, 1855, p. 33.

*Sorex nudipes*, Blyth, *Journ. As. Soc. Beng.*, vol. xxiv, 1855, p. 34.

*Pachyura nudipes*, Blyth, Fizinger, *Sitzungsber. Ak. Wiss. Wien*, 1868, p. 172; Anderson, *Proc. Zool. Soc.* 1873, p. 231.

*Pachyura assamensis*, Anderson, *Proc. Zool. Soc.* 1873, p. 232.

*Crocidura* (F.) *macrotis*, et *nitidofulva*, Anderson, *Journ. As. Soc. Beng.*, vol. xlii, pt. ii, 1877, pp. 271 & 272.

*Hab.* Lower Bengal (Calcutta), Assam (Goálpára), Tenasserim (Amherst).

Snout seminude, long, and somewhat swollen across the incisors, with the nasal portion attenuated. Ears moderately large and rather patulous, their antero-posterior breadth equalling two-thirds of the distance from their lower angles to the tip of the snout; sparsely covered with short brown hairs on their outer, and partially so, on their inner surface. Limbs rather feeble, shortly haired from the elbow and knee downwards. Feet only sparsely covered with short brown hairs which are paler on the toes; toes rather short; claws well developed. Tail equalling or not quite equalling the length of the trunk, rounded, tapering and ringed, nearly nude in appearance, owing to the shortness of the brown hairs which sparsely clothe it; moderately long white hairs interspersed as usual. Fur very short, shining brown or dark-brown above, which is also the colour of the upper sur-

<sup>1</sup> Wagler in 1833 (*Isis*, p. 54) named a red-toothed shrew *S. melanodon* = *S. vulgaris*.



faces of the snout and tail; lower half of ears, chin, and feet, yellowish brown.

	Adolescent ♂	Adult ♀
Length, tip of snout to vent	in. 1.67	in. 1.75
" of tail	" 1.08	" 1.27
" hind foot	" 0.32	" 0.34
" tip of snout to eye	" 0.27	" 0.30
" eye to ear	" 0.17	" 0.14
Height of ear	" 0.19	" 0.20
Breadth of ear	" 0.15	" 0.24

The first upper incisors are rather widely apart, directed forwards and downwards. A well-developed tubercle on the inner side of the posterior portion, which is conically pointed. The second incisor is large, and more than equalling the longitudinal length of the third incisor and the canine; the third incisor is only a little smaller than the canine; the premolar is placed behind the canine, has a sharp point, and is visible externally, but its point is much above the level of the point of the anterior cusp of the first molar; the chief cusp of this last mentioned tooth is but little longer than the second incisor.

Blyth, in describing this species, stated that it was "remarkable for its naked feet and very large ears; also for the odoriferous glands on the sides being strongly developed; whereas we can detect them in no other of these minute species." The feet, however, of the type specimens, named in Blyth's own handwriting, appear to be quite as well haired, if not more so than in some other species, and, moreover, the glands on the sides are not peculiar to it as a small species. As the character assigned by Blyth, *vis.*, naked feet, is misleading, I have re-named this species after its distinguishing feature, namely, its large ears.

It is closely allied to *C. perrottetii* from the Nilgiris, but is distinguished from it by its larger ears and by the character of its teeth, the first incisor being well curved, with a prominent eminence at the base, and the first intermediate tooth being large and conical.

234 *a to e*. Four adult males and one adult female, and the skulls of *a*, *b* and *e*. Nos. 254 A to E of Blyth's Catalogue. Amherst, Tenasserim. Presented by E. P. Reilly, Esq., 1847. Types of *S. nudipes*, Blyth.

*f* ♂ *g*. Two adult males in alcohol, and the skull of Nos. 255 A & B of Blyth's Catalogue. Calcutta, 1855-57. Types of *S. melanodon*, Blyth, and of *C. nitidofulva*, Anderson.

*h*. An adult male in alcohol. Calcutta. Presented by Mr. C. Swaries, March 1873.

i. An adult male in alcohol and its skull. Goálpára, Assam. Presented by H. L. Houghton, Esq., 2nd December 1866. Type of *P. assamensis*, Anderson.

j. An adult male in alcohol and its skull. Botanical Gardens, Howrah. Presented by Dr. J. Anderson, 1872.

k. A gravid female, with five fetuses in the womb, one opposite to the os, in alcohol, and its skull. Jessore. Presented by James Wood-Mason, Esq., October 1873.

### 235. *Crocidura perrottetii*.

*Sorex perrottetii*, Duvernoy, Mag. de Zool. Pl. 38 & 54, 1842, p. 89, Pl. 47.

*Crocidura* (P.) *nilgirica*, Anderson, Journ. As. Soc. Beng., vol. xlv, pt. 2, 1877, p. 274.

*Hab.* Nilgiris (Utakamund).

Form small, slender. Head long, somewhat flattened; snout rather broad, but long and rather abruptly rounded towards the nostrils. Snout densely haired, and moustachial bristles rather numerous. Ears of moderate size and not hidden, rounded, and sparsely clad with short hairs. Limbs clad to the wrist and ankle, and the upper surface of the feet sparsely clad. Claws well developed and sharp; pads of feet rather prominent. Tail equals about the length from the vent to the front of the shoulder; not swollen at the base, rather slender; finely ringed, about 12 to 13 rings to the one-tenth of an inch; numerous short strong hairs between the rings, with scattered, long black hairs. Fur short, dense, and velvety; general colour, snout, ears, tail and upper surface of limbs, deep fuliginous, velvety black or dark brown, paler below with a silvery lustre. Claws yellowish.

#### *Adult male.*

Length from tip of snout to vent	. . . in.	1.78
" of tail	. . . "	1.12
" of hind foot	. . . "	0.35
Height of ear	. . . "	0.15
Breadth of ear	. . . "	0.15

The skull proves this specimen to be fully adult, as the sutures on the base of the cranium are obliterated. A small portion of the occipital has been broken off, but sufficient remains on one side to indicate that the foramen magnum has been very large; measured from the inferior border of the foramen magnum to the end of the palate anteriorly, the total length of the adult skull is only 0.45. The condyles are



large, and there is a considerable concavity or depression immediately over the temporal fossa. The most marked feature of the skull is the character of the teeth, more especially of the first upper incisor, which is short and but little, if at all, hooked, and destitute of the marked eminence at its base posteriorly, which is so distinctive of the generality of shrews. There is a slight indication of the position of the eminence on the outer side of the tooth, but no more, and the tip of the first intermediate tooth is but little below the basal portion of the first incisor, and the immediately succeeding teeth gradually diminish in size to the fourth intermediate tooth, which is well developed, and in the line of the teeth before it, and almost wholly visible externally. The anterior portions of the crowns of these three teeth are rather sharply pointed. The apex of the crown of the first molar is on a level with the base of the first incisor. The last tooth has two distinct cusps. The condyle of the lower jaw is not divided by a notch.

Inferior border of foramen magnum to tip of premaxillæ	in. 0.45
Breadth across molars	" 0.17
" at posterior border of infraorbital foramen	" 0.16
" at middle of frontal contraction	" 0.13
" external glenoid fossæ	" 0.21
" " to auditory canal	" 0.26
Length of upper row of teeth	" 0.21
" of lower " " "	" 0.14

235 *a & b*. Two adult males in alcohol and the skull of *a*. Utakamund, Nilgiris. Presented by Lt.-Colonel Beddome, 30th July 1877.

*c & d*. Two adults in alcohol. Nilgiris. Presented by Lt.-Colonel Beddome, 28th July 1879.

#### 236. *Crocidura* (P). *travancorensis*.

*Crocidura* (P). *travancorensis*, *Anderson, Journ. As. Soc., Beng.*, vol. xlv, pt. 2, 1877, p. 275.

*Hab.* Southern India (Travancore).

Head more elongated before the ear than in *P. macrotis*; ears moderately developed and sparsely clad; feet seminude, with short white hairs, hardly hiding the scaly skin. Claws well developed, sharp. Tail equalling the length of the trunk without the head; not swollen at the base, tetragonal, scaly, ringed, 43 rings to the quarter inch and not obscured by the hairs, which are extremely few and short, those at the tip being longest; long white hairs interspersed.



Fur very short, dense, and soft; reddish brown above, the under surface greyish, with a warm tint, silvery in certain lights. Feet yellowish brown. Tail above concolorous with the upper surface of the body.

	♂
Length from tip of snout to vent . . . . .	in. 1.66
" of tail . . . . .	" 1.19
" of hind foot . . . . .	" 0.31
" from tip of snout to eye . . . . .	" 0.30
" " eye to ear . . . . .	" 0.14
Height of ear . . . . .	" 0.19
Breadth of ear . . . . .	" 0.21

The skull has the facial portion more elongated than in *C. macrotis*.

The front upper incisor is short and directed downwards, and the posterior portion of the tooth has a small tubercle on its inner side, and is large and rather sharply pointed. The second is considerably larger than the third incisor and the canine combined, and its apex reaches as far downwards as the anterior point of the first incisor. The third incisor and the canine are of equal breadth, the first of the two being the longer. The small premolar is largely visible externally, although it lies between the canine and first molar. There is a slight swelling on the outer border of the lower incisor near its free end.

	♂
Anterior border of foramen magnum to tip of premaxillæ . . . . .	in. 0.49
Breadth across maxillæ . . . . .	" 0.18
" behind infraorbital foramen . . . . .	" 0.13
" before brain case . . . . .	" 0.15
" external to glenoid fossæ . . . . .	" 0.20
" " to tympanic . . . . .	" 0.26
Length from condyle of lower jaw to anterior end of alveolar length from condyle of lower jaw to anterior end of alveolar line . . . . .	" 0.25
Length of upper alveolar line . . . . .	" 0.20
" " lower " " . . . . .	" 0.12

236a. An adult male in alcohol and its skull. Travancore. Presented by the Rev. H. Baker, 1871. *Type*.

b. An adult in alcohol. Kalaghat, western slopes of the Nilgiris. Presented by Lt.-Colonel Beddome, 6th April 1878.

c. An adult in alcohol. Kollegál Hills. Presented by Lt.-Colonel Beddome, 25th November 1878.

(No lateral gland.)

### 237. *Crocidura rubicunda*.

*Crocidura* (P.) *rubicunda*, Anderson, *Journ. As. Soc. Beng.* vol. xlv, pt. 2, 1877, p. 277.

*Hab.* Western Bengal (Paresnâth).

Snout long and pointed, not much swollen across the moustachial region, well haired. Ears large, round, very sparsely haired; rather long white hairs on the flaps. Feet slender, covered with short, nearly white hairs, so as to obscure the skin and projecting over the yellow claws, which are rather large and curved at the points. Tail equalling the distance from the vent to the middle of the ear, measured along the side, slightly swollen at the base, round, and rather thickly clad with longish pale yellow, almost white hairs, with long white hairs intermixed. Muzzle, ears, feet and tail, pale yellowish. Fur rather long and soft, and pale rusty fawn. Under parts grey, suffused with fawn.

	♀
Length, tip of snout to vent . . . . .	in. 3.40
"    of tail . . . . .	" 2.30
"    of hind foot . . . . .	" 0.64
"    tip of snout to eye . . . . .	" 0.63
"    eye to ear . . . . .	" 0.36
Height of ear . . . . .	" 0.33
Breadth of ear . . . . .	" 0.40

The first upper incisors of this female are longer, stronger and more curved than in the adult male of *C. bidiana*, and there is no tubercle on the inside of the posterior portion of the tooth, which is not so sharply pointed as in that species. The second incisor is also a broader and more blunted tooth than in *C. bidiana*, and the third incisor is notably smaller than the canine. The premolar is largely visible externally. The lower incisors are notched in the middle, and their points are not so upwardly bent as in *C. bidiana*.

	♀
Anterior border of foramen magnum to tip of premaxillæ . . . . .	in. 0.93
Breadth across maxillæ . . . . .	" 0.23
"    behind infraorbital foramen . . . . .	" 0.20
"    before brain case . . . . .	" 0.25
"    external to glenoid fossæ . . . . .	" 0.39
"    "    to tympanic . . . . .	" 0.42
Length of upper alveolar line . . . . .	" 0.49
"    from condyle of lower jaw to anterior end of alveolar line . . . . .	" 0.52

237a. An adult female in alcohol and its skull. Paresnâth. Presented by Dr. F. Stoliczka, 1874. *Type*.

b. An adolescent female. Locality unknown. Bequeathed to the Asiatic Society of Bengal by Dr. F. Stoliczka, 6th March 1880.



238. *Crocidura subfulva*.

*Crocidura murina*, *Anderson, Journ. As. Soc. Beng.* vol. xli, 1872, p. 223.

*Crocidura* (P.) *subfulva*, *Anderson, Journ. As. Soc. Beng.* vol. xli, pt. 2, 1877, p. 278.

*Hab.* Kach.

Snout rather short and broad: ears moderately developed, rather flattened above and rounded posteriorly and sparsely clad with pale-coloured hairs. Feet moderately large, and tolerably well clad, with pale-coloured hairs hanging over the claws, which are yellow and strong. The tail equals the length of the trunk and is not swollen at the base, but it is rather thick throughout and somewhat abruptly tapers towards the point, and it is somewhat tetragonal. It is relatively well clad with short pale hairs which hide the rings, and at the point the hairs form an imperfect pencil, long white hairs are intermixed. The snout, ears, feet and tail are pale yellowish-brown; the tail paler on its under surface. General colour of the upper surface pale fawn; silvery grey on the under parts.

Tip of snout to vent, 1" 90; tail, 1" 30; hind foot, 0" 42.

Front upper incisors directed forwards and downwards, posterior portion moderately developed and sharply conical, a very feeble but distinct tubercle on the inside. Second incisor large, sharply pointed and nearly equalling in length the first tooth, twice as broad as the third incisor and canine. The premolar is very minute and wedged in between the canine and first molar, and is partially visible externally.

Anterior margin of foramen magnum to tip of premaxillæ . in.	0.62
Breadth across maxillæ . . . . .	0.23
" behind infraorbital foramen . . . . .	0.12
" before brain case . . . . .	0.20
" external to glenoid fossæ . . . . .	0.26
" to tympanic . . . . .	0.30
Length of upper alveolar line . . . . .	0.32
" from condyle of lower jaw to anterior end of alveolar line . . . . .	0.36

These are rather young shrews, but from the condition of the skull of which I have given the measurements, it is apparent that the animal does not attain to a much larger size. It might be mistaken for the young of *C. bidiana*, or *C. rubicunda*, but the teeth being complete it is evident from the measurements of the upper dental line that its teeth are considerably smaller than the teeth of either of these species.



238 a & b. An adolescent, and a younger female in alcohol, and their skulls. Kach. Presented by Dr. F. Stoliczka, 12th April 1872.

239. *Crocidura montana*.

*Sorex montanus*, Kelaart, *Prod. Fauna Zey.* 1852, p. 31.

*Hab.* Ceylon Highlands.

Snout long and rather broad across the moustachial region. Ears round, full, and moderately large. Feet well developed, dull brown. Lower half of limbs short haired. Claws moderately strong and curved, yellowish. Feet sparsely clad with brown hairs, generally long and white at the base of the claws. Tail shorter than the trunk and rather thickly covered with short dark brown hairs, with long pale brown or greyish hairs intermixed. Fur full, soft, and deep slaty, the grey colour being almost obscured by dull dark brown. Under parts with a silvery sheen.

*Male.*

	in.		in.		in.
Tip of snout to vent	3.70	Height of ear	0.30	Hind foot	0.74
" " " eye	0.72	Breadth of ear	0.32	Tail	2.25

Upper front incisors well developed and close together anteriorly; a very prominent tubercle on the inner side of the posterior portion forms a distinct cusp, the posterior portion itself being only feebly developed. The second incisor large and conical, nearly equalling in length the great cusp of the false molar, and exceeding the longitudinal breadth of the third incisor and canine, which are well developed, the latter being only a little larger than the former. The second premolar is wedged in between the canine and false molar, and is wholly hidden externally. The small anterior cusp of the false molar is near the base of the tooth and is feeble, and its tip is only a short way below the level of the crown of the first premolar.

	in.
Anterior border of foramen magnum to tip of premaxillæ	1.02
Breadth of maxillæ	0.40
" behind infraorbital foramen	0.22
" anterior to brain case	0.28
" external to glenoid articulation	0.40
" " to tympanic	0.50
Length of lower jaw condyle to anterior end of alveolar line	0.60
" " upper alveolar line	0.50
" " lower " "	0.33

239a. An adult male in alcohol and its skull; in very bad condition. Ceylon. Presented by H. Nevill, Esq., 26th February 1874.

240. *Crocidura pygmaeoides*.

- (?) *Sorex pygmaeus*, Hodgson, *Ann. and Mag. Nat. Hist.* 1845, p. 269.  
*Sorex perrottetii*, Blyth (*partim*), *Journ. As. Soc. Beng.* vol. xvi, 1847, p. 1276; *op. cit.* vol. xxiv, 1855, p. 34.  
 (?) *Sorex hodgsoni*, Blyth, *Journ. As. Soc. Beng.* vol. xxiv (1855), p. 34.  
*Sorex micronyx*, Blyth, *Journ. As. Soc. Beng.* vol. xxiv, 1855, p. 33, *Ann. and Mag. Nat. Hist.* vol. xvii, 2nd ser. 1856, p. 20; *Cat. Mamm. As. Soc. Mus.* 1863, p. 85 (*partim*).  
 (?) *Sorex atratus*, Blyth, *Journ. As. Soc., Beng.*, vol. xxiv, 1855, p. 34.  
*Pachyura micronyx*, Blyth, Fitzinger, *Sitzungsber. Akad. Wiss. Wien*, 1868, p. 171; Anderson, *Proc. Zool. Soc.*, 1873, p. 231.  
*Crocidura* (P.) *pygmaeoides*, Anderson, *Journ. As. Soc. Beng.* vol. xlvii, pt. ii, p. 279.

*Hab.* Himalaya.

Snout rather long, narrow and pointed; well clad. Ears well developed and prominent, sparsely clad with short hairs. Feet well developed, rather long and slender, the hind foot being especially larger than in *C. macrotis*, Andr.; toes moderately long: claws strong and curved. Lower portion of both anterior and posterior limbs clad with short brown hairs. Feet rather sparsely clad with short brown hairs. Tail rather long, somewhat tetragonal, and nearly equalling the length of the trunk and half of the head, ringed, 35 rings to quarter of an inch, rather densely covered with short brown hairs, which nearly hide the rings; long white interspersed hairs. Fur rather short, soft, and silky. General colour rich, deep rusty brown. Snout pale rufous brown, feet yellowish brown. Under parts brownish, with a marked silvery sheen.

	Female.	in.
Length, tip of snout to vent . . . . .		1.85
"    of tail . . . . .		1.40
"    of hind foot . . . . .		0.37
"    tip of snout to eye . . . . .		0.31
"    eye to ear . . . . .		0.15
Height of ear . . . . .		0.20
Breadth of ear . . . . .		0.23

Anterior incisors well developed; posterior portion with no internal process of the cingulum; conical point slightly directed backwards. Second incisor large, broader than the conjoint third incisor and canine, which have the usual relations; premolar placed behind the canine, visible exter-



nally. The anterior cusp of the first molar large, its point almost on the same level as the point of the canine; the point of the chief cusp of the first molar is nearly on the same level as the point of the first incisor.

	in.
Anterior border of foramen magnum to tip of premaxillæ . . . . .	0.50
Breadth across maxillæ . . . . .	0.19
„ behind infraorbital foramen . . . . .	0.14
„ before brain case . . . . .	0.15
„ external to glenoid fossæ . . . . .	0.23
„ „ to tympanic . . . . .	0.27
Length of lower jaw, condyle to anterior end of alveolar line . . . . .	0.26
„ of upper alveolar line . . . . .	0.13
„ of lower „ „ . . . . .	0.13

*Sorex hodgsoni*, Blyth, was founded on a shrew so young that the skull is almost membranous and the teeth so little advanced that they had not pierced the gums, and it is impossible, therefore, to determine the characters of the dentition.

The shrew, named by Blyth *S. micronyx*, was a very young individual with the bones impartially ossified and the incisors only appearing through the gums, yet he derived the distinguishing character of the supposed species from its still imperfectly matured claws. As the claws, however, in the adult are strong and well developed, the term *micronyx* is a misnomer and cannot be accepted.

*Sorex atratus* was founded on a headless specimen.

240a. A young specimen in alcohol. Its skull, No. 257A and p. 85 of Blyth's Catalogue. Darjeeling. Presented by Major Sherwill, 1854.

b. A young male in alcohol and its skull. No. 258B of Blyth's Catalogue, p. 85. Masúri. Presented by L. C. Stewart, Esq., 1852. One of the Types of *S. micronyx*, Blyth.

c. An adult female in alcohol and a fragment of its skull. No. 258A of Blyth's Catalogue. Almorá. Presented by Major R. Wroughton, 1846. The specimen is much shrivelled, &c., and in bad condition. The specimen is marked 258 of Blyth's Catalogue.

d. An adult female in alcohol and its skull. Darjeeling. Presented by Dr. F. Stoliczka, 2nd September 1871.

e. An adult in alcohol. Mungpu, British Sikkim, Presented by G. King, Esq., M.B., 1878.

f. A headless specimen in alcohol. No. 256, p. 88 of Blyth's Catalogue. Chárápunjí. Presented by R. A. G. Frith, Esq., 1851. This specimen is transfixed on the spine of a shrub, and it was found in this condition. Type *S. atratus*.



## SUB-GENUS CROCIDURA, Wagler, 1823.

(Lateral gland.)

241. *Crocidura rubricosa*.

*Crocidura* (C.) *rubricosa* et *kingiana*, *Anderson, Journ. As. Soc. Beng.*, vol. xlvii, pt. ii, 1877, pp. 280 281.

*Hab.* Northern Bengal (Purniah), and extending into the Himalaya (British Sikkim), Assam, Gáro Hills and Khási Hills.

Snout pyramidal, moderately broad, well clad, nostrils rounded, divided, but not much prolonged. Ears of moderate size, and sparsely clad. Limbs in their lower halves sparsely clothed, also the feet, which are, however, covered with short brown hairs, long over the claws, which are well developed, but not much curved. Tail mouse-like, equalling the distance from the vent to the angle of the mouth, somewhat tetragonal, not swollen at the base, ringed, covered with short brown hairs, the long white hairs confined to the basal third. Colour dark or reddish brown above, more rufous, on the head and snout; feet, and under surface of tail paler yellowish brown; under parts greyish brown, with a prevailing silvery sheen.

Length, tip of snout to vent . . . . .	in.	3.20
" of tail . . . . .	"	2.42
" of hind foot . . . . .	"	0.60
" tip of snout to eye . . . . .	"	0.51
" eye to ear . . . . .	"	0.22
Height of ear . . . . .	"	0.28
Breadth of ear . . . . .	"	0.30

The skull of this species is moderately elongated, with the upper front incisors close together anteriorly, but not touching, and there is a well-defined tubercle on the inside of the posterior portion of each tooth, narrow, sharp, and conical. The second incisor is large and equals the latter. The interior cusp on the first molar is sharply defined, but wholly developed from the cingulum. There is a marked tubercle on the outer margin of the lower incisor anterior to the middle.

Anterior border of foramen magnum to premaxillæ . . . . .	in.	0.73
Breadth across maxillæ . . . . .	"	0.27
" behind infraorbital foramen . . . . .	"	0.19
" anterior to brain case . . . . .	"	0.21
" external to glenoid fossæ . . . . .	"	0.31
" to tympanic . . . . .	"	0.37
" of upper alveolar line . . . . .	"	0.36
" of lower . . . . .	"	0.21

241a to d. An adult male, two adolescent males, and one adolescent female, in alcohol, and their skulls. The female was impregnated, although the basi-occipital suture was perfectly intact, and her teeth surfaces unground. Sibságar, Assam. Presented by S. E. Peal, Esq., 1867. *Type*.

e. An adult female and portion of its skull (lower jaw.) Purniah. Presented by S. W. Shillingford, Esq., 28th August 1872.

f. An adult female in alcohol, and its skull. Chárápunjí. Presented by Lt.-Colonel H. H. Godwin Austen, 1870.

g. A young male in alcohol and its skull. Gáro Hills. Presented by Lt.-Colonel H. H. Godwin Austen, 1870.

h. A young female in alcohol and fragments of its skull. Názira, Assam. Presented by J. M. Foster, Esq., 1870.

i to k. Three adult males in alcohol and the skull of i. Mungpu (British Sikhim). Presented by G. King, Esq., M.B., 6th March 1877. *Type S. kingiana*. The lateral gland was so obscure in the type that I overlooked it, but other specimens have established its presence, and I have no hesitation in uniting this species with *C. rubricosa*.

l to n. Two adult males and one adult female in alcohol. The female has three pairs of inguinal teats. Mungpu, British Sikhim. Presented by J. L. Lister, Esq., 10th February 1879.

#### 242. *Crocidura fuliginosa*.

*Sorex fuliginosus*, Blyth, *Journ. As. Soc. Beng.*, vol. xxiv, 1855, p. 362; *Ann. & Mag. Nat. Hist.*, 2nd ser., vol. xvii, 1856, p. 22; *Cat. Mamm. Mus. As. Soc.* 1863, p. 84.

*Crocidura fuliginosa*, Blyth, *Anderson, Proc. Zool. Soc.* 1873, p. 231.

*Hab.* Tenasserim.

Snout moderately long, not much pointed and not densely clad. Ears rather large, seminude. Lower portion of limbs only sparsely clad: feet nearly nude, large, and broad: claws short and deep. Tail as long as the interval between the vent and eye, rounded, and rather thick at the base, finely ringed, sparsely covered with very short dark brown hairs. A few long white hairs from its root, towards its middle. Snout, ears, and tail pale yellowish-brown. Fur dense, moderately long, velvety, dark slaty at the base, the root fuliginous brown,



with inconspicuous, dull, long tips: under part scarcely, if at all, paler, with silvery reflections.

	♂, juv.	♀, ad.
Tip of snout to vent . . . . .	2.46	2.90
Hind foot . . . . .	0.50	0.60
Tail . . . . .	1.95	2.30
Tip of snout to eye . . . . .	...	3.43
Eye to ear . . . . .	...	0.25
Height of ear . . . . .	...	0.28
Breadth of ear . . . . .	...	0.30

In the female skull, the base of the incisor is much directed forwards, and the tooth is then abruptly bent downwards, the downwardly directed portion being rather short. The posterior portion of the tooth is not strongly developed, and the point is slightly directed backwards: the cingulum forms a strong ridge along the inside, but no tubercle. The second incisor is large and conically pointed, its points being nearly on the same level with the point of the chief cusp of the false molar. The third incisor and canine are more than the breadth of the second incisor. The small anterior cusp on the false incisor rises above the cingulum, but its point is above the level of the point of the canine. Two not very well marked depressions or notches occur on the lower incisors.

	♂	♀
Anterior border of foramen magnum to tip of pre-maxillæ . . . . . in.	0.80	0.76
Breadth across maxillæ . . . . .	0.31	0.30
„ behind lachrymal canal . . . . .	0.20	0.20
„ anterior to brain case . . . . .	0.23	0.23
„ external to glenoid articulation . . . . .	0.35	0.32
„ „ to tympanic . . . . .	0.42	0.41
Length from condyle of lower jaw to anterior end of alveolar line . . . . .	0.50	0.48
„ of upper alveolar line . . . . .	0.40	0.38
„ of lower „ „ . . . . .	0.23	0.25

242a & b. An adult female and an adolescent male in alcohol, and the skull of *a*; Nos. 253 A & B of Blyth's Catalogue, p. 84, Tenasserim Provinces. Presented by Major Berdmore, 1855. Types of *C. fuliginosa*, Blyth.

c. A mounted specimen, No. 253C of Blyth's Catalogue. Presented by Major Berdmore, 1855.

d. A skull, No. 253D of Blyth's Catalogue. Presented by Major Berdmore, 1855.



242. *Crocidura retusa*.

*Crocidura* (Cr.) *retusa*, Peters, *Monatsber. der R. Akad. der Wissen.* 1870, p. 585.

*Hab.* Highlands of Ceylon (Paradinia).

Snout rather long and pointed; partially haired; ears seminude, prominent. Limbs seminude in their lower halves; feet rather long and slender; claws well developed. Tail round, scaled, slender and tapering, almost equalling the length of the body and head. Fur moderately long, bright rusty red above, under parts pale silvery grey with a warm tint; ears, feet, and under surface of tail pale reddish—yellow.

	♂
Tip of snout to vent . . . . .	in. 2.10
Hind foot . . . . .	„ 0.50
Vent to tip of tail . . . . .	„ 1.95
Snout to eye . . . . .	„ 0.37
Eye to ear . . . . .	„ 0.16
Height of ear . . . . .	„ 0.21
Breadth of ear . . . . .	„ 0.24

The skull is almost fully adult, as the basi-occipital suture is partially closed. Upper anterior incisors close together, a well-marked tubercle on the inner side of the posterior portion. The third incisor and the canine are of nearly equal size. A very minute tubercle on the outer side of the first lower incisor about its middle. The lower incisors are rather short and more forwardly directed than is generally the case among shrews.

Anterior border of foramen magnum to tip of premaxillæ	in. 0.60
Breadth across maxillæ . . . . .	„ 0.20
„ behind lachrymal canal . . . . .	„ 0.15
„ anterior to brain case . . . . .	„ 0.20
„ external to glenoid articulation . . . . .	„ 0.28
„ „ to tympanic . . . . .	„ 0.30
Length from condyle to anterior end of alveolar line . . . . .	„ 0.34
„ of upper alveolar line . . . . .	„ 0.30
„ of lower „ „ . . . . .	„ 0.17

The specimen agrees generally with the measurements given by Prof. Peters of his type, and apparently also with the characters assigned to the dentition of *C. media*.

243a. An adult female in alcohol and its skull. Paradinia, Ceylon. Presented by W. Thwaites, Esq., 14th May 1872.

(No lateral gland.)

244. *Crocidura kelaarti*.*Sorex kelaarti*, Blyth, *Journ. As. Soc. Beng.*, vol. xxiv, 1855, p. 32;*Cat. Mamm. As. Soc. Mus.*, 1863, p. 84.*Crocidura kelaarti*, Anderson, *Proc. Zool. Soc.*, 1873, p. 230.*Hab.* Ceylon (Galle).

A young shrew with the very short fur of youth. Tail short; ears small, little raised above the fur; feet well developed with longish claws. Lower half of limbs and the feet seminude. General colours above and below rich rusty brown; pale yellowish-brown on the feet. Snout well haired.

The shrew is evidently extremely young, probably little more than newly born, as the teeth have evidently only been piercing the gum.

Length, tip of snout to vent	"	"	"	"	"	in.	2.70
" tip of snout to eye	"	"	"	"	"	"	0.40
Hind foot	"	"	"	"	"	"	0.60
Eye to ear	"	"	"	"	"	"	0.20
Vent to tip of tail	"	"	"	"	"	"	1.15
Height of ear	"	"	"	"	"	"	0.23
Breadth of ear	"	"	"	"	"	"	0.15

All the sutures are intact, and the premaxillary suture is anterior to the third intermediate tooth.

It may prove to be the young of some other species already known. It is curious to observe, as Blyth remarks, that the inguinal teats of this shrew, although the animal is so very young, are well developed.

244a. A young female in alcohol and its skull, No. 252A of Blyth's Catalogue, p. 84. Galle, Ceylon. Presented by Dr. Kelaart, 1854. *Type*.

245. *Crocidura myoides*.

*Sorex*<sup>1</sup> (*Crocidura*) *myoides*, W. T. Blanford, *Sc. Results, 2nd Yárkand Mission*, 1879, p. 16, pl. 1 fig. 1; pl. 1a fig. 2.

*Hab.* Ladák (Leh).

245a. An adult female in alcohol and its skull. Leh, Ladák. Dr. F. Stoliczka, 1873-74. Presented by the 2nd Yárkand Mission. Type figured and described by W. T. Blanford,

<sup>1</sup> The teeth are white, and the front upper incisors have an obscure internal process. Teeth:  $\frac{2+4}{2} + \frac{5}{2} + \frac{8}{2+6} = 28$ .

Esq., F.R.S., Scientific Results of 2nd Yarkand Mission, 1879, p. 16, pls. 1 and 1a, figs. 1 and 2.

b. A flat skin, Leh. Presented by W. H. Johnson, Esq., 31st July 1880.

### SUB-FAMILY SORICINÆ.

#### GENUS SOREX, Linnæus, 1735.

##### 246. *Sorex alpinus*.

*Sorex alpinus*, Schinz, *Fröbel's und Heer Mittheil.* Bd. I, Neue Denkschr. I, p. 13, fig. 1.

*Amphisorex alpinus*, Duvernoy, *Mém. de la Soc. d'Hist. Nat. de Strasb.* t. ii, 3 Suppl., 1838, p. 4; *Mag. de Zool.*, 1842, p. 31, tab. 49.

*Sorex antinorii*, Bonap. *Icon. d. Faunae Ital.*, fasc. xxix.

*Corsira alpinus*, Blyth, *Cat. Mamm. As. Soc. Beng. Mus.*, 1863, p. 86 (partim); Jerdon, *Mamm. of Ind.* (partim), 1867, p. 61.

*Hab.* Europe (Alpine region).

246a. A stuffed adult, No. 261A, p. 86 of Blyth's Catalogue. Mt. St. Gothard. Presented by M. Melherbe, 1849.

##### 247. *Sorex vulgaris*.

*Sorex vulgaris*, Linn., *Mus. Adolph. Frid.* p. 10, 1754; Blasius, *Naturg. Säugeth. Deutschl.*, 1857, p. 129, fig. 86.

*Hab.* Europe.

247a. An adult female in alcohol, No. 262A, p. 86 of Blyth's Catalogue.

b. An adult male in alcohol, No. 262B, p. 86 of Blyth's Catalogue. *S. leucodon*, apud Melherbe. France. Presented by M. Melherbe, 1854.

c. A stuffed specimen, No. 262C, p. 86 of Blyth's Catalogue. France. Presented by M. Melherbe, 1854.

d. A stuffed specimen, No. 262D, p. 86 of Blyth's Catalogue. England. Presented by Mr. Davison, 1846.

e. A skin. No history. Labelled *S. tetragonurus*. England.

f. Dental portion of a skull, No. 262F of Blyth's Catalogue, p. 86. England. Presented by Mr. Davison, 1846.

##### 248. *Sorex pygmæus*.

*Sorex pygmæus*, Pallas, *Zoor. Ross. Asiat.* t. i, p. 184.

*Hab.* Northern Europe and Asia.

248a. An adult in alcohol. No history.



GENUS *SORICULUS*, Blyth, 1855.

A small shrew with red-tipped teeth, and the following dentition:  $\frac{2+4}{2} + \frac{3}{2} + \frac{3}{2} + \frac{3}{2} = 30$ . The first upper incisors with a prominent cusp at their posterior portion, and a small cusp or talon internally on the vertical portion. Lower incisors with a prominent cusp over their base. Snout moderately long, and tapering: nostrils not prominent. Ear almost completely hidden: antitragus acting as a valve. Feet moderately or well developed, scaly, partially haired. Tail mouse-like, scaly, ringed, tetragonal, no long hairs, pencillated at the tip. No lateral gland. Fur dense and velvety. Skull with a short orbito-temporal fossa, and with two articular surfaces for the lower jaw, upper zygomatic, and a lower post-glenoid.

The skull of this genus is very different in form from the skull of *Crocidura*. It is a much lighter skull and without ridges, and has more the form of the skull of *Talpa*, but without the zygomatic arch and any trace of an orbital process. The temporal fossa is very short; and the preorbital foramen is spanned by a broad arch of bone. The occipital region is forwardly tilted, but not to the same extent as in *Talpa*. There is a prominent angle immediately external to the tympanic, and from this angle a feeble ridge runs forwards to the beginning of the temporal fossa, and bears on its under surface anteriorly a facet, which looks forwards, outwards, and downwards, and which receives the upper division of the condyle of the mandible. The *foramen magnum* is very broad from above downwards. The post-glenoid process is very large, convex posteriorly and marked by a large foramen (*ovale*?). Its anterior surface is deeply concave and looks forwards and somewhat outwards, and bears an articular surface for the reception of the lower division of the condyle of the mandible, and this surface is in no way continuous with the upper surface, but widely separated from it by a deep notch. There is a minute foramen at the base of the post-glenoid process posteriorly. The posterior margin of the palate forms a thin fine convex ridge, a little behind the last molar.

The notches separating the articular surface of the divided condyle are not so deep as in *Chimarrogale*. The process of the angle is thin and moderately long, and directed backwards.

The first upper incisors are short and hooked, with a prominent cusp at their posterior portion, and a small cusp on the inner side of the vertical portion of the tooth, a little above the tip. Second, third, and fourth intermediate teeth conical, decreasing in size from before backwards. An extremely minute tooth, wedged in between the four intermediate teeth and the second premolar, and completely excluded from the general line of the teeth externally. Second premolar with one prominent external central cusp with a smaller cusp anterior to it, the former cusp being prolonged backwards as a ridge terminating as an obscure cusp. The basal portion of the second premolar internally has two pointed cusps, the anterior cusp the most downwardly prolonged, corresponding to the internal cusps occurring on the first two molars: the crown of each molar has three small external and two internal cusps connected to the internal cusps by a zigzag line. The third molar has four cusps arranged quadrangulantly around a central depression with one external cusp. The first lower incisor has a *marked cusp near its base*. The third tooth has two cusps, and the molars are five-cusped, one anterior and two external and two internal, opposite to each other.

The transverse process of the atlas is not outwardly prolonged. The spinous process of the axis is large and halbert-shaped, but the remaining cervical vertebræ show no distinct spinous processes. The neural arches have considerable lateral breadth. There are well-developed hypapophyses on the 2nd and 3rd cervicals, and a trace of them on the 3rd and 4th. The transverse processes of the 3rd, 4th, 5th, and 6th cervicals overlap. The dorsal vertebræ are devoid of spinous processes, until about the 10th segment, when a trace begins to show itself and which becomes more strongly developed in the lumbar vertebræ. In *Crociodura* the first dorsal vertebræ have short spinous processes, and all of them have their processes more or less developed, whereas in *Talpa* they are, as in *Soriculus*, almost obsolete. Five vertebræ are united in the sacrum, which has a prominent keel-like crest, and, instead of a symphysis, the pubic bones are much more widely apart than in *Crociodura*. The caudal vertebræ increase in length to the 8th, and then diminish. The vertebral formula is C. 7, D. 13, L. 6, Sacral and P. Sacral 5, Caudal 17.

The shoulder girdle is rather far forwards, as in *Talpa*, and from the neck being short, the head is brought near the shoulder, but not to the marked degree as in the mole. The scapula is short and narrow as in *Crociodura*, but the humerus is relatively very much shorter and stouter than in that



genus, and approaches in this respect to the humerus of *Talpa*. The external tuberosity is hook-like and large, and there is a prominent ridge from the head of the humerus dividing the front of the bone in two, and terminating on its external margin near the middle of the bone. Opposite to this point, on the inner border of the bone, is a large, somewhat anteriorly directed process, prolonged downwards from the inner tuberosity of the head of the bone. The lower end of the bone is very broad, and the inner condyle is widely prolonged. The character of the humerus indicates a burrowing habit of life, which seems probable from the long and nearly straight claws, which have none of the hooked, grasping character of an arboreal mammal. Radius and ulna distinct. The manubrium is T-shaped with a sharp ridge down its centre. There are five mesosternal pieces. As in Shrews generally, the clavicle does not articulate with the humerus. Tibia and fibula united.

It is evident that its affinities are markedly soricine, but at the same time it shows a few in the direction of *Talpa*.

Length of vertebral column, atlas to last sacral	in.	3.70
" of caudal vertebrae	"	1.57
" of scapula	"	0.43
" of humerus	"	0.38
" of ulna	"	0.51
" of manus	"	0.40
" of os innominatum	"	0.40
" of femur	"	0.45
" of tibia	"	0.60
" of pes	"	0.60

#### 249. *Soriculus nigrescens*.

*Corsisa nigrescens*, Gray, *Ann. & Mag. Nat. Hist.*, vol. x, 1842, p. 261; Hodgson, *Cat. B. M.*, 1846, p. 17; *ibid.*, 2nd ed., 1863, p. 9; Horsfield, *Cat. Mamm. E. Ind. Co. Mus.*, 1851, p. 136.

*Sorex atterimus*, Blyth, *Journ. As. Soc. Beng.*, vol. xii (1843), p. 928; *ibid.*, vol. xxiii, 1854, p. 933, note.

*Sorex nigrescens*, Gray, Schreber, *Säugeth.*, Suppl. Bd. v, 1855, p. 546, (partim).

*Soriculus nigrescens*, Blyth, *Journ. As. Soc.*, vol. xxiii, 1854, p. 733; *ibid.*, vol. xxiv, 1855, p. 36; *Ann. & Mag. Nat. Hist.*, 2nd ser., vol. xvii, p. 24; *Cat. Mamm. As. Soc. Beng.*, 1863, p. 86; Jerdon, *Mamm. of India*, 1867, p. 59.

*Sorex sikkimensis*, Hodgson, *Ann. & Mag. Nat. Hist.*, new series, vol. iii, 1849, p. 203; Horsfield, *Cat. Mamm. E. Ind. Co. Mus.*, 1851, p. 136; *Ann. & Mag. Nat. Hist.*, vol. xvi, 1855, p. 111; Gray, *Cat. Mamm. of Nepaul*; Hodgson, *B. M.*, 1863, p. 8.

*Crossopus nigrescens*, (Gray) Anderson, *Proc. Zool. Soc.*, 1873, p. 232.

*Hab.* Himalaya (Sikkim).

Body rather abruptly terminated posteriorly; snout short,





249 *a to c*. Three stuffed specimens, Nos. 266 A to C, p. 87 of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill and W. Theobald, Esq., 1854-55.

*d to f*. Two adult females and one adolescent male in alcohol and the skulls of *d* and *e*, Nos. 260 D to F of Blyth's Catalogue. Darjeeling. Presented by Major W. S. Sherwill and W. Theobald, Esq., 1854-55.

*g & h*. Two adult females in alcohol and the skull of *g*. Darjeeling. Presented by W. S. Atkinson, Esq., November, 1869.

*i*. An adult female in alcohol. Darjeeling. Presented by W. T. Blanford, Esq., 2nd September, 1871.

*j & k*. An adult male and female in alcohol. Darjeeling. Presented by Dr. F. Stoliczka, 1871.

*l to n*. An adult female, an adolescent male, and an adolescent female in alcohol. No history.

*o*. A skeleton. No history.

#### 250. *Soriculus caudatus*.

*Sorex caudatus*, Hodgson, *Ann. & Mag. Nat. Hist.*, new Ser., vol. iii. 1849, p. 203; *Horsfield, Cat. Mamm. E. Ind. Co. Mus.*, 1851, p. 135; *Ann. & Mag. Nat. Hist.*, vol. xvi, 1855, p. 111; *Schreber Säugeth. Suppl.*, Bd. v, 1855, p. 566.

*Corsira* (?) *caudata*, Blyth, *Journ. As. Soc. Beng.*, vol. xxiv, 1855, p. 37; *Ann. & Mag. Nat. Hist.*, 2nd ser., vol. xvii, 1856, p. 27.

*Corsira alpinus*, *Tomes, Ann. & Mag. Nat. Hist.*, 2nd ser., vol. 17, 1856, p. 27 (*partim*); Blyth, *Cat. Mamm. Mus. As. Soc. Beng.*, 1865, p. 86 (*partim*).

*Corsira alpina*, Jerdon, *Mamm. Brit. Ind.*, 1867, p. 61 (*partim*).

*Crossopus caudatus*, Hodgson, *Anderson, Proc. Zool. Soc.*, 1873, p. 232.

*Soriculus gracilicauda*, *Anderson, Journ. As. Soc. Beng.*, vol. xlvi, 1877, p. 282.

*Hab.* Himalaya (Sikkim).

Snout rather sharply pointed, but not very long: well haired. Ears moderately large, partially hidden and well clad with long hairs on their outer surfaces, and along their margins, and tragus, amalgamating with the general fur, so that the ears are not prominent. Limbs slender, the lower half of the ante-brachium, and of the ante-femoral portion of the limb, nearly nude. Fore feet small. Hind feet rather long and slender, with a prominent white tubercle over the distal end of the 5th metatarsal. Feet scaly above, very sparsely covered with brown hairs, fewer on the toes: claws compressed, but little pointed. Tail long and slender, tetragonal, tapering to a fine, compressed, pencillated point, very



slightly exceeding the length of the body and head. Tail rather coarsely scaly, ringed, 25 rings to quarter of an inch, sparsely covered with very short dark brown hairs, arising between the rings and with long brownish yellow hairs at the tip, forming a kind of pencil. No long white hairs. Fur long, dense, and soft; the under or hidden parts being deep slaty, the exposed portion being tipped with rufous or golden brown; under parts greyish brown. Feet pale brown.

Tip of snout to vent . . . . .	in	2.46
" " to eye . . . . .	"	0.42
Eye to ear . . . . .	"	0.30
Hind foot . . . . .	"	0.54
Vent to top of tail . . . . .	"	2.57

The posterior portion of front upper incisor conically pointed, reaching about half-way down the anterior portion: second incisor moderately large and acutely pointed: third incisor slightly larger than the canine, the tip of the latter being level with the point of the small anterior external cusp of the first molar.

This shrew was referred to by Blyth as *S. alpinus*, Schinz, from which, however, it is at once distinguished by the character of its dentition, as it has only 30 teeth, whereas *S. alpinus* has 32.

I have examined the type of this species in the India Museum. It came from Sikkim.

In its rather broad anterior extremities, it approaches *C. nigrescens*, and the character of its limbs suggests that it is partially of a burrowing habit.

250a. An adult male in alcohol and its skull, No. 261 B of Blyth's Catalogue, p. 86. Darjeeling. Presented by W. T. Blanford, Esq., 1858.

b. An adult male in alcohol, and the dental portion of its skull. Sikkim. Presented by W. T. Blanford, Esq., 2nd September, 1871. Type of *C. gracilicauda*.

c & d. Two adults, in alcohol. Mungpu, British Sikkim. Presented by J. L. Lister, Esq. 10th February 1879.

#### GENUS CROSSOPUS, Wagler, 1832.

##### 251. *Crossopus fodiens*.

*Crossopus fodiens*, (Pallas) Blasius, *Naturl. der Säugeth. Deutschlands*, 1857, p. 120.

*Hab.* Europe (Northern), and Asia (Siberia).

251a. An adult male in alcohol, No. 263A, p. 87 of Blyth's



Catalogue. Norway. Presented by the Christiana University, 1846.

♂ & c. Two adults in alcohol. No history.

### SUB-FAMILY CROSSOPINÆ.

GENUS CHIMARROGALE, Anderson, 1877.

#### 252. *Chimarrogale himalaica*.

*Crossopus himalayicus*, Gray, *Ann. & Mag. Nat. Hist.*, vol. x, Dec. 1842, p. 261; *List. Mamm. B. M.*, 1843, p. 80; *Blyth, Journ. As. Soc.* vol. xxiv (1855), p. 37; *Blyth & Tomes, Ann. & Mag. Nat. Hist.*, vol. xvii, 2nd ser., pp. 25 and 26; *Serdon, Mamm. Ind.*, 1855, p. 563.

*Sorex himalayicus*, Wagner, *Schreber. Säugeth.*, Suppl., Bd. v, 1855, p. 563.

*Crocidura himalaica*, Gray, *Anderson, Proc. Zool. Soc.*, 1873, p. 231.

*Chimarrogale himalaica*, Anderson, *Anat. & Zool. Resch. and Yunnan Expeditions*, 1878, p. 139; pl. 5, figs. 17 to 30.

*Hab.* Himalaya (Sikkim); Yunnan (Ponsee).

Body elongated; snout moderately long and pointed; broader across the moustachial area in the male than in the female. Fur soft, dense and velvety. The general colour of the upper parts is dark grey, richly washed with a dark brown, almost black, fuliginous, or blackish brown, almost obscuring the grey colour, and the fur generally has a finely dotted appearance, due to the presence of longer scattered hairs with white tips. When the fur is pulled aside, it is seen to be uniformly slaty, but all the hairs terminate in fine brown, or blackish longer brown tips, with the exception of scattered, stronger, and longer hairs, which have broad white tips. These hairs are especially numerous on the hind quarters, where they are much longer than on the other parts of the body, and they correspond to the white tipped hairs of *Nectogale*. Under surface greyish, with a silvery sheen, washed with earthy brown on the throat, and the middle of the belly. Whiskers blackish or even white. Hind feet large, but relatively smaller than in *Nectogale*: the fore limb is clothed to the wrist: the hind limb, in the lower half of the tibia, is scaly and partially clad with short hairs. The upper surfaces of the feet are naked, with the exception of the metacarpus and metatarsus, which are sparsely covered with short, flattened, stiff, adpressed hairs, almost white. The upper surfaces of the toes are scaly and bare, with the exception of from one to six broad, stiff,

rather long hairs, at the base of the claws, above. Toes ciliated along each of their sides, with a line of broad stiff hairs of equal length, forming a dense short fringe. The line, along the outer margin of the internal and external toes, is continued along the sides of the feet as a strongly ciliated line, or fringe of white hairs: the claws are yellowish, moderately long, and curved. From the vent to the tip of the tail equals the distance from the vent to nearly the eye. Tail long, quadrangular in transverse section: under surface and sides densely covered with longish adpressed, broadish, coarse, rigid hairs of the same character as those on the sides of the toes, and feet, but longer: upper surface in its two upper thirds is only sparsely covered with short strong ciliated hairs not so obscuring the scaly rings as in the lower third, where it is clad much as on the under surface and sides. The hairs on the under surface of the tail are white, and on the sides and upper surface dark brown.

The eye is small, almost hidden, and the ear almost completely so by the fur. The ear is a transversely oval slit 0·26 in length; the lower margin of the lower posterior half of the ear covered with fine microscopic hairs. The portion above the antetragus is covered on its inner surface with ordinary fur, except at a small spot at its upper extremity.

	in.
Length, tip of snout to vent . . . . .	3·83
Vent to tip of snout . . . . .	3·00
Length of hind foot . . . . .	0·87

*Measurements of skull.*

Anterior border of foramen magnum to tip of premaxillæ .	0·90
Breadth across maxillæ . . . . .	0·34
" behind preorbital foramen . . . . .	0·26
" at posterior end of temporal fossa . . . . .	0·28
" at posterior end of upper articular surface from lower jaw . . . . .	0·43
" external to tympanic . . . . .	0·55
Length of lower jaw . . . . .	0·59

Front incisors moderately large and not much curved. The posterior eminence low, and but little pointed. The intermediate teeth of nearly equal size, the middle tooth being the largest, and the third the smallest, all being conical. The central external cusp of the first molar is not very strong or long, while its rather obtuse anterior cusp is on a level with the third intermediate tooth.

It is closely allied to, if not identical with, *Sorex (Crosopus) platycephalus*, Temminck, of Japan.

252a. A stuffed specimen in bad condition. Sikkim. Presented by T. Jerdon, Esq., 1866.

b. A skin of an adult in alcohol, and its skeleton. Ponsee, Kakhyen Hills, Yunnan, 3,800 feet. Presented by Dr. J. Anderson, 1868. 1st Expedition to Western China, 1868. Skeleton figured, Anat. and Zool. Researches; pl. v, pages 17—30.

c & d. An adult male and female in alcohol. Ryang, British Sikkim, 4,000 feet. Purchased for the Museum by G. King, Esq., B.M., 10th February 1879.



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[Recognised names of genera, species, and varieties are printed in italics;  
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## ERRATA.

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- Page 45.—*For* *Einiger affenarten*, *read* *Beschreibung einiger Affenarten*.  
„ 99, lines 3 and 4, *for* *Tarsidæ* and *Tarsinæ*, *read* respectively  
    *Tarsiidæ* and *Tarsiinæ*.  
„ 119, *after* line 38, *insert* Genus *Cœlops*, Blyth, 1849.  
„ 123, lines 4, 5 and 6, *for* *darjelinensis*, *read* *darjelingensis*.  
„ 123, line 37, *for* *Melherbe*, *read* *Malherbe*.  
„ 140, lines 6 and 7, *for* *dascyneme*, *read* *dasyeneme*.  
„ 157, line 19, *for* *Hylominæ*, *read* *Hylomyinæ*.  
„ 159, line 4, *for* 1881, *read* 1880.  
„ 176, line 38, *omit* *one an*.  
„ 184, line 14, *for* *Blandford*, *read* *Blanford*.  
„ 201, lines 17, 25, and 28, *for* *Melherbe* *read* *Malherbe*.  
„ 204, line 31, *for* *Corsisa*, *read* *Corsira*.



